



**PAN-CANADIAN FRAMEWORK
ON CLEAN GROWTH AND CLIMATE CHANGE**

Forest Ministerial Progress Report



2020

TABLE OF CONTENTS

1. Introduction	3
2. Overall Analysis of Progress	5
3. Measure-by-Measure Summary Table	10
4. Annex: Measure-by-Measure Detailed Update	13
4.1. Increasing stored carbon: protect and enhance carbon sinks	13
4.2. Increasing the use of wood for construction	104
4.3. Generating bioenergy and bioproducts	31
4.4. Advancing innovation in GHG-efficient forest management practices	45



INTRODUCTION

On December 9, 2016, federal and most provincial and territorial governments adopted the Pan-Canadian Framework on Clean Growth and Climate Change (PCF). The PCF is an ambitious plan to reduce greenhouse gas (GHG) emissions, create clean jobs and growth, and increase Canada’s resiliency to the impacts of climate change.

The PCF outlines how Canada will meet or exceed its target under the Paris Agreement of reducing GHG emissions by 30 percent from 2005 levels by 2030. The PCF was developed through a collaborative process by federal, provincial and territorial working groups in consultation with the public and Indigenous Peoples who will continue to be meaningfully engaged as the plan is implemented.

The PCF puts Canada on a path to meet its 2030 emission reduction target through four pillars:

1. Carbon pricing;
2. Complementary actions to reduce greenhouse gas emissions;
3. Adaptation and climate resilience; and,
4. Clean technology and innovation.

Through the PCF, federal, provincial, and territorial governments committed to report annually on progress to First Ministers. To meet this commitment, the Canadian Council of Forest Ministers (CCFM) along with nine other Ministerial tables have committed to producing annual progress reports on PCF actions within their portfolios. These reports feed into annual Synthesis Reports on overall PCF progress, which are delivered to First Ministers.

The forest sector falls under the PCF’s third pillar, *Complementary actions to reduce greenhouse gas emissions*, and supports the following actions:

1. Increasing stored carbon by protecting and enhancing carbon sinks;
2. Increasing the use of wood for construction;
3. Generating bioenergy and bioproducts; and,
4. Advancing innovation in GHG-efficient forest management practices.

Three of the forest-related PCF actions (1, 3, and 4) also fall within the agriculture portfolio. Progress on actions that relate directly to agriculture will be included in the PCF report from the Ministers of Agriculture. There is no significant overlap between the measures discussed in this report and those reported by the Ministers of Agriculture.

This is the fourth annual Forest Ministers' report on the PCF, and it builds on last year's report. Programs included in the 2019 report have been updated to reflect tangible progress, and many new programs have been added.



OVERALL ANALYSIS OF PROGRESS

Over the past year, federal, provincial, and territorial governments have made tangible progress on forest-related initiatives in support of the Pan-Canadian Framework on Clean Growth and Climate Change. This year's report covers over 65 initiatives demonstrating the progress and ongoing commitment in supporting both environmental and economic objectives. When reviewing these initiatives, three themes emerge clearly: the importance of partnerships and collaboration; the need for forest science to support policy and action; and a drive towards innovation to support clean growth and a low-carbon future.

Examples of policies and strategies include:

- Ontario's release of Sustainable Growth: Ontario's Forest Sector Strategy;
- Yukon's release of Our Clean Future; A Yukon Strategy for Climate Change, Energy and a Green Economy, which outlines priorities up to 2030 to address climate change, meet energy needs, including bioenergy, and build a green economy;
- Release of Québec's Timber Production Strategy which will support increased uptake in forest products that store carbon over long periods (e.g. construction materials);
- British Columbia's creation of the Office of Mass Timber Implementation to accelerate demand for mass timber and contribute to Clean BC carbon emissions reduction targets;
- The Canadian Council of Forest Ministers' continued advancement of the Bioeconomy Framework for Canada;
- New Brunswick's Wood in the Construction of Public Buildings and Infrastructure Policy (i.e., Wood First Policy) and Forest Biomass Policy for sustainable biomass harvesting.

The policies and measures summarized in this report demonstrate a commitment across the country to achieve emission reductions and carbon storage involving forests and use of wood.

The initiatives also reflect the importance of partnerships and collaboration in delivering on PCF commitments. These initiatives involve collaborations between multiple levels of government, universities and academics, industry partners, Indigenous representatives, not-for-profit organizations, and communities. Engaging with such a diverse group of stakeholders will help ensure that Canada's PCF actions support Canadians' diverse economic, cultural, and spiritual forest values.

Federal, provincial, and territorial PCF initiatives also reflect the importance of evidence-informed forest policy based on sound research. Governments continue to support forest science, including better data collection and modelling, both to monitor the effects of climate change and to predict these effects in different scenarios. Together, this research will help Canadians to mitigate and adapt to the challenges posed by climate change. For example, the Jack pine Assisted Migration Experiment in Saskatchewan and Manitoba; Northern Prairie Forests Integrated Regional Climate Change Assessment; and Adapting New Brunswick's Forests and Ecosystems to Climate Change.

To this end, the initiatives highlighted in this report reflect continued investment in forest innovation and the transition to a low-carbon economy. Innovative uses of wood in construction, including tall-wood buildings, also continue to mature and accelerate. Together, these initiatives will foster a culture of innovation and help the forest sector to thrive in a low-carbon economy.

The sections below describes concrete results from selected initiatives organized by PCF action. See the Annex for a complete list of initiatives.

INCREASING STORED CARBON: PROTECT AND ENHANCE CARBON SINKS

Federal, provincial, and territorial governments will work together to protect and enhance carbon sinks, including in forests, wetlands, and agricultural lands (e.g., through land-use and conservation measures).

Trees grow by absorbing and storing CO₂ from the atmosphere, and carbon is also stored in dead biomass and soil. Sustainably managing forests is an important part of protecting and enhancing carbon sinks. In the last year, federal, provincial, and territorial governments have increasingly focussed on how forest management could be adjusted to increase carbon sinks and reduce GHG emissions by, for example, improving regeneration of forests after natural disturbances like insect infestations and fires.

In the 2020 Fall Economic Statement, the Government of Canada announced up to \$3.16 billion over 10 years, starting in 2021-22 to deliver on a commitment to plant two billion trees. This effort is part of an overarching \$3.9B approach to nature-based climate solutions to fight climate change. This initiative is an opportunity to expand Canada's natural assets and help reduce the impacts of climate change by increasing carbon sequestration and at the same time, providing other co-benefits such as improved air and water quality, increased community resilience to wildland fire, and supporting species at risk.

- Alberta's Caribou Habitat Recovery Program made progress on caribou habitat restoration, and will contribute to ecosystem resilience and carbon sequestration. From 2017-2019, the program restored approximately 580 km of legacy seismic lines, linear disturbances created when mapping oil reserves. In 2020, an additional 270 km are expected to be treated.
- Northwest Territories contains a significant percentage of Canada's boreal forest. This frontier is being measured as a carbon sink under the Multisource Vegetation Inventory program. This baseline knowledge will be an invaluable source of information in the future.
- British Columbia's Forest Carbon Initiative (FCI), in part supported by the Low Carbon Economy Fund, aims to reforest areas lost to forest fires across British Columbia and to implement best practices that support healthy, resilient, and productive forests. The program will reduce emissions and sequester carbon while supporting jobs in rural communities. In 2020, FCI supported the fertilization of 17,000 ha on the BC coast to increase growth and carbon sequestration. In February 2020, the Government of British Columbia extended the program to 2023-24.
- In early 2019, Manitoba began implementation of a large scale shelterbelt tree planting initiative along two sections of the TransCanada Hwy in Manitoba. Beyond carbon sequestration, this initiative is expected to provide additional co-benefits including the provision of public safety by reducing the number of highway closures and travel risks due to blowing snow, improved soil and water conservation, and enhanced esthetics,

among many others. The initial test phase of the project started in spring of 2020 with the planting of an eco buffer shelterbelt. A successful and efficient planting season is expected in the spring of 2021.

- New Brunswick, Quebec, and Newfoundland and Labrador continue to combat the spruce budworm epidemic in Eastern Canada. New Brunswick treated approximately 30,000 ha of hot-spot populations in 2020 using an early intervention strategy while Newfoundland and Labrador treated 32,000 ha in 2020. This strategy involves a suite of integrated research, insect monitoring and treatment activities, through an innovative approach, to mitigate current and future outbreaks of the insect. Quebec treated over 90,000 ha on public land while treating an additional 19,000 ha on private land in 2020. Quebec continues to monitor and map the defoliation caused by the spruce budworm.
- The \$1.4 billion Low Carbon Economy Leadership Fund, part of the \$2 billion Federal Low Carbon Economy Fund (LCEF) announced in the 2016 and 2017 federal budgets, was launched in June 2017. The Fund supports new and expanded provincial and territorial actions to reduce GHG emissions. One of the targeted sectors for the LCEF is enhancing carbon sinks and reducing GHG emissions in the forest sector, and funding continued to be provided for this in 2020. The federal government has put in place bilateral funding agreements with most provincial/territorial governments for approved Leadership Fund projects, including projects in a number of provinces and territories aimed at increasing stored forests carbon, and started to transfer funds based on expenses incurred and funding agreements. LCEF funding has dedicated funding until 2021-22.
- Alberta continues to address mountain pine beetle outbreaks in Western Canada, treating 115,301 stems (trees) from August 2019 – August 2020 for a total of 241,500 stems over two years. Stems treated were either felled and burned, felled and peeled, or felled and chipped. Additional early interventions and monitoring, reforestation, and treatment of affected areas will be ongoing in order to limit the damage to forest health and productivity.

INCREASING THE USE OF WOOD FOR CONSTRUCTION:

Federal, provincial, and territorial governments will collaborate to encourage the increased use of wood products in construction, including through updated building codes.

Governments across Canada have long supported increased wood use for construction. Use of renewable solid wood products in building construction can store carbon long-term and, when they replace more emissions-intensive non-renewable building products, help to reduce GHG emissions. An urban landscape dotted with tall wood buildings and wood bridges would help reduce greenhouse gas emissions while benefitting Canada's forest sector and the resiliency of forest-based communities that depend on work in the sector.

- In Spring 2020, British Columbia created the Office of Mass Timber Implementation (OMTI) to lead the coordinated deployment of policy leavers and statutory authorities of Ministries across the BC Government. Since its creation, OMTI is leading the development of a draft strategy and rolling action plan that will: leverage existing and previous efforts to support mass timber; define cross-government partnerships; and incorporate industry consultation findings. A proposed Mass Timber Advisory Council will champion and provide advice on the B.C. Mass Timber Implementation Strategy.
- The federal Green Construction through Wood (GCWood) program, a four-year \$39.8 million initiative, was launched in October of 2017 to support wood-based research, development, education, and demonstration projects that increase the use of wood in infrastructure projects as a green building material. To date, the GCWood program has allocated \$34.4M through 21 contribution agreements to organizations across Canada, leveraging over a \$1 billion in wood research and construction activity. This support has enabled key demonstrations of mass timber, both structurally and aesthetically, such as the series of mass timber buildings at Atomic Energy of Canada Limited's Chalk River Laboratories, which will introduce innovative wood designs and technologies for the first time at a nuclear facility. Current funding supports activities until 2021-22.

- The Atlantic Woodworks Initiative is a cooperative program led by the maritime Lumber Bureau with Support from Canada and the four Atlantic Provinces (New Brunswick, Newfoundland and Labrador, Nova Scotia, and Prince Edward Island). It promotes wood as a preferred building material in Atlantic Canada through workshops, special programs and building and development industry events. In 2018-2019 this program was expanded to include PEI in promotional efforts, and PEI's support for the program has been extended to 2021.
- New Brunswick's Climate Change Action Plan commits to reduce provincial buildings GHG emissions and encourage the use of wood products in construction, including through building codes, standards and procurement policies. New Brunswick's Wood in the Construction of Public Buildings Policy requires the use of wood in building structures when it is a cost competitive and practical building material. This policy led to the use of wood in the framing construction of modular classrooms and nursing homes; as well as the use of wood in constructing park structures, including a timber framed lodge at Mount Carleton worth approximately \$2 million.
- In addition to government programs, in 2020 many jurisdictions also continued to invest in research collaborations on wood building construction and wood product innovation through FPInnovations, a national public-private forest research institute. For instance, in August 2020 FPInnovations was provided \$1.3 million from the federal government to develop a biodegradable, sustainable filter for single-use face masks for use during the COVID-19 pandemic.

GENERATING BIOENERGY AND BIOPRODUCTS:

Federal, provincial, and territorial governments will work together to identify opportunities to produce renewable fuels and bioproducts – for example, generating renewable fuel from waste.

Increasing the production of bioenergy and bioproducts contributes to GHG emissions reductions by decreasing reliance on fossil-fuel intensive alternatives. For example, harvest residues and other waste wood can be used for energy in place of fossil fuels such as diesel, while forest bioproducts can be substituted for fossil fuel-intensive products such as steel and plastics.

- As part of its new sustainable growth strategy for the forest sector in 2020, the Government of Ontario announced the development of a five-year Forest Biomass Action Plan to secure jobs and encourage sustainability in the forestry sector, while supporting economic development using forest biomass
- The 2017 federal budget included \$55 million over 5 years for the BioHeat stream of the Clean Energy for Rural and Remote Communities (CERRC) program, to support transitions from fossil fuel heating to bioheating. To date, the CERRC program has approved a total of 343 projects, of which 321 are located within Indigenous communities. Most of these projects will roll out over multiple years. CERRC will offer further rounds of funding over the course of its six-year duration. In Budget 2019, the government proposed to consolidate federal programs that help reduce diesel reliance in Indigenous, northern and remote communities, to help northern communities more easily access reliable and cleaner sources of energy.
- Jurisdictions are investing in research, development, and commercialization of innovations in using wood to help position Canada as a competitive market for advanced bioproducts, including biofuels. For instance, a new interdepartmental working group in Yukon was set up in spring 2020 to collaborate on harvesting and biomass supply opportunities. The working group has coordinated the development and review of fuel abatement tenders and facilitated harvesting opportunities for forestry clients; with these projects, wood volume will be available for the industry and the biomass industry will have access to fibre.
- Projects in Alberta relating to bioenergy and bioproducts continue to progress, with a number of initiatives testing the use of wood waste in the production of cement and the use of woody biomass and wood waste in power production. In 2020, a joint venture pellet plant between Tolko Industries and Pinnacle Renewable Energy was completed and is expected to achieve full production in 2021.

- Nova Scotia is also developing a Wood Energy heating solution for public buildings, which will reduce their reliance on fossil fuels. In 2019 a task group was established to identify suitable public buildings to convert fossil fuel heating systems to wood chip heating systems.
- The Government of Québec has continued its support for the Wood Innovation Program which aims to stimulate investment for innovative forest products. In 2020, funding was extended until 2024 with a total investment of \$134.5 million.

ADVANCING INNOVATION IN GHG-EFFICIENT FOREST MANAGEMENT PRACTICES

Federal, provincial, and territorial governments will work together to enhance innovation in GHG-efficient management practices in forestry and agriculture.

Finding new ways to harvest and use wood fibre to reduce emissions from forest and forestry operations and maximize the value derived from wood has become crucial to help mitigate climate change and transform the Canadian forest industry to a low-carbon economy. In a complimentary fashion, it is important to invest in innovative solutions to identify more GHG-efficient forest management practices enhances forests as carbon sinks while advancing economic transformation and competitiveness of the forestry industry.

- The CCFM is continuing to advance the implementation of its Forest Bioeconomy Framework for Canada, released in 2017. The Framework presents an integrated approach to meeting climate change mitigation commitments and advancing innovation in the forest sector for the long term. At the 2020 CCFM meeting, Ministers were presented with a progress report on implementation of the Framework and next steps for progress on the Framework's four pillars.
- In 2020, Emissions Reductions Alberta launched the Food, Farming and Forestry Challenge. The Challenge Establishes a \$40 million dollar fund aimed at funding the development of innovative solutions for GHG emissions mitigation, abatement, and sequestration across Alberta's food, farming, and forestry industries.
- In Saskatchewan, Forest Management Agreement holders are legally required to address how climate change will impact their ability to achieve their management targets. Since these requirements have been put in place, five approved forest management plans which have a section which addresses the impact of climate change on their ability to achieve the targets set out in the plan and another plan is scheduled for review in spring 2021.

Overall, federal, provincial and territorial actions to support sustainable forest management practices, innovation and transformation have compounded climate change mitigation benefits, improving how Canada meets the challenges and opportunities that climate change presents to the forest sector.

MEASURE-BY-MEASURE SUMMARY TABLE

JURISDICTION	ACTIVITY
PCF ACTION: <i>Increasing stored carbon: protect and enhance carbon sinks</i>	
Multiple	Assessing climate change impacts on timber resource availability in western-central Canada: economic implications and mitigation
Multiple	Jack pine Assisted Migration Experiment
Multiple	Northern Prairie Forests Integrated Regional Climate Change Assessment
Multiple	Adapting New Brunswick's Forests and Ecosystems to Climate Change
Multiple	Spruce Budworm Early Intervention Strategy
Federal	Low Carbon Economy Fund (LCEF)
Federal	Growing Canada's Forests
Alberta	Enhanced forest growth and reforestation of legacy natural disturbance on forested public land
Alberta	Alberta Mountain Pine Beetle Strategy
Alberta	Alberta Land-use Framework Planning
Alberta	Caribou Habitat Recovery Program
British Columbia	Forest Carbon Initiative (FCI)
Manitoba	Spatial Estimation of Carbon Stocks in Manitoba's Peatlands
Manitoba	Manitoba major transportation route shelterbelts
Manitoba	Use of UAVs and Deep Learning for more efficient forest renewal survey and improved forest regrowth
New Brunswick	Carbon sinks and offsets commitments under New Brunswick's Climate Change Action Plan
Northwest Territories	Multisource Vegetation Inventory and in situ carbon assessments.
Prince Edward Island	PEI commitment of 7% Landbase protection under the Pathway to Canada Target 1
Prince Edward Island	Launch of new Carbon Capture Tree Planting Program
Québec	Increasing carbon sinks through afforestation and reforestation
Québec	Quebec's Timber Production Strategy
Québec	Spruce budworm treatments on private and Crown land
Québec	Additional silviculture work to sequester carbon
Québec	Additional silviculture work to sequester carbon and support knowledge development
Québec	Development of knowledge and a tool adapted to the reality of Quebec's forest sector
PCF ACTION: <i>Increasing the use of wood for construction</i>	
Multiple	Renewed support for Atlantic Woodworks Initiative
Multiple	FPIInnovations research investments
Federal	Green Construction through Wood (GCWood) program
British Columbia	Increase the use of low carbon and renewable materials in all public sector infrastructure projects
British Columbia	Forestry Innovation Investment (FII) Wood First Program
British Columbia	The Office of Mass Timber Implementation (OMTI)
British Columbia	Early Adopter Program
New Brunswick	Wood in the Construction of Public Buildings and Infrastructure Policy

JURISDICTION	ACTIVITY
Ontario	Ontario's Forest Sector Strategy and The Made-in-Ontario Environment Plan (promoting the use of wood for construction)
Ontario	Establishment of a state-of-the-art, cross laminated timber facility in St. Thomas, Ontario
Québec	Prefabrication Wood Program: optimization and automation (PWPOA)
Québec	Wood Building Demonstration Program
Québec	Wood Charter
Québec	Continuous training program on the use of wood in construction
PCF ACTION: <i>Generating bioenergy and bioproducts</i>	
Multiple	Biomass energy project in Saskatchewan
Multiple	Whitesand First Nation Community Sustainability Initiative (CSI)
Multiple	Development of the Wikwemikong First Nation's 150,000 metric tonne wood pellet plant using forest biomass in Nairn Centre
Federal	Clean Energy to Reduce Reliance on Diesel in Remote Communities (CERRC) Program
Alberta	Alberta Carbon Offset System – Offset Generation
Alberta	Forest Industry Bioenergy and Bioproduct Projects
New Brunswick	Forest Biomass Policy
Northwest Territories	2030 NWT Climate Change Strategic Framework
Nova Scotia	Development of Wood Energy heating solutions for public buildings
Ontario	A thermomechanical-pulp biorefinery (TMP-Bio) project
Ontario	Biochar in Automotive Products
Ontario	Haliburton BioChar commercialization of organic carbon production from wood fibre product
Ontario	Forest Biomass Action Plan
Ontario	The Made-in-Ontario Environment Plan
Prince Edward Island	Expanding the use of biomass heat in public buildings
Québec	2018-2023 Development Strategy for Quebec's Forest Products Industry
Québec	Wood Innovation Program (WIP)
Québec	Innovation Platform
Québec	Residual Forest Biomass Program
Québec	Support for innovative initiatives in pulp and paper plants
Québec	Tax credit for the production of pyrolysis oil from residual forest biomass
Québec	Tax measures to promote biofuel production in Quebec
Yukon	Fuel Abatement, Biomass and Climate Change Implementation
Yukon	Funding of First Nations and Community Projects
Yukon	Our Clean Future; A Yukon Strategy for Climate Change, Energy and a Green Economy
PCF ACTION: <i>Advancing innovation in GHG-efficient forest management practices</i>	
Alberta	Alberta Innovates - Alberta Bio Future (ABF)
Alberta	Emissions Reduction Alberta (ERA)
British Columbia	Forest Biomass Supply Information System

JURISDICTION	ACTIVITY
Manitoba	Short-rotation woody biomass afforestation trial at Cook Creek for carbon sequestration and climate change mitigation
Ontario	Sustainable Growth: Ontario's Forest Sector Strategy
Prince Edward Island	The Federation of Agriculture examined opportunities to reduce the GHG emissions, or increase carbon storage, in the agricultural sector in Prince Edward Island.
Saskatchewan	Assisted Migration Trial
Saskatchewan	Forest Management Planning

ANNEX: MEASURE-BY-MEASURE DETAILED UPDATE

PCF ACTION: <i>Increasing stored carbon: protect and enhance carbon sinks</i>				
JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
Multiple	<p>Assessing climate change impacts on timber resource availability in western-central Canada: economic implications and mitigation</p> <p>Collaborative NSERC funded research project between academia (i.e. Lakehead University, University of Winnipeg), Forest Industry (i.e. Resolute Forest Products Canada, Inc; Louisiana Pacific Ltd); and Federal and Provincial government partners (i.e. NRCan-CFS, MB, SK, AB, and ON) conducting a regional climate change impacts on western-central boreal forests.</p>	<p>Principle investigators, collaborators, partners, and students met at Lakehead University in late 2017 to discuss data access protocols and further clarified roles and responsibilities of all team members.</p> <p>Several important synthesis documents and study data analyses have been made/ published.</p> <p>All fieldwork data analysis and modelling are currently ongoing.</p>	<p>The project was completed in April 2020 as scheduled. Numerous scientific reports and publications resulted from the study.</p> <p>Numerous undergraduate and graduate (MSc and PhD) students have been trained</p>	April 2020
Multiple	<p>Jack pine Assisted Migration Experiment</p> <p>The experiment was established in spring of 2015 by the Forestry and Peatlands branch of Manitoba Sustainable Development as part of a collaborative study between Manitoba and the Forest Service of Saskatchewan's Ministry of Environment. The main goal of this collaborative study is to explore the potential of various jack pine provenances from southerly-warmer areas to grow and survive north of their current range (i.e. southeast MB).</p>	<p>Replicated research trials have been established at three different sites (i.e. near Marchand, Menisino, and Stead).</p> <p>Field surveys (re-measurements) have been conducted once every year (i.e. 2015, 2016, 2017, and 2019) to monitor tree survival, growth, and health.</p>	<p>One more field survey will be conducted in 2019. Thereafter, re-measurements will be discontinued to one every five years.</p> <p>2019 field re-measurement campaign has been conducted using survey123;</p> <p>A GIS database has been created from the data collected over the 5-year period;</p> <p>Data cleaning and analysis are in process</p>	This is a long-term study, and field monitoring of tree survival and growth will continue until the plantation reaches mature and old ages.

<p>Multiple</p>	<p>Northern Prairie Forests Integrated Regional Climate Change Assessment</p> <p>Collaborative NRCan funded research project between the Saskatchewan Research Council, University of British Columbia, Ontario Forest Research Institute, Forest Industry (i.e. Spruce Product Ltd; Louisiana Pacific Ltd, Edgewood Forest Product); and Federal and Provincial government partners (i.e. CFS, MB and SK) undertaking a regional climate change vulnerability assessment on forest using CCFM-CCTF adaptation framework approach</p>	<p>Principal investigators and collaborators at the Saskatchewan Research Council in Saskatoon in early 2019 to discuss data access protocols and further clarified roles and responsibilities of all team members.</p> <p>Vulnerability assessment using the NRCAN-CFS Adaptation guidebook approach is currently ongoing.</p>	<p>This work was completed in March 2020 as scheduled.</p> <p>Two technical reports (one on landscape modelling and one on forest vulnerability assessment) were produced by SRC and submitted to NRCan;</p> <p>A webinar was given by SRC through Canada’s Adaptation platform and CCACoP</p>	<p>March 2020</p>
<p>Multiple</p>	<p>Adapting New Brunswick’s Forests and Ecosystems to Climate Change</p>	<p>The NB Department of Energy and Resource Development has taken steps toward adapting the management of forest-based natural resources in the province through education, training, and forming partnerships; efforts which will continue in the coming years.</p> <p>Two collaborative research projects have begun with:</p> <ol style="list-style-type: none"> 1) NRCan-CFS on identifying and integrating the impact of projected climate scenarios on stand level tree regeneration into forest management planning tools used by the NB Department of Energy and Resource Development. 2) The University of New Brunswick, NRCan-CFS, and Northern Hardwood Research Institute on evaluating the cost and benefits of adapting to climate-induced changes in drought and wind regimes in New Brunswick forests. 	<p>The effects of climate change on Crown road management are part of newly created program within the Forest Operations and Development Branch. A plan for implementation of Crown roads management system has been developed which includes a vulnerability assessment to inform future asset management decisions. Four of six Crown Timber Licenses have been assessed as of November 2020.</p>	<p>Ongoing</p>

<p>Multiple</p>	<p>Spruce Budworm Early Intervention Strategy</p> <p>The federal and provincial governments, industry and academia renewed a 5-year funding partnership (2018-2022) to continue early targeted intervention against an outbreak of spruce budworm within Atlantic Canada. The goal of the strategy is to protect forest habitats, forest carbon sequestration, and forest-dependent economy from the impacts of widespread tree mortality. The key to the strategy is early detection of rising budworm populations and then treatment of these “hotspots” to prevent an outbreak.</p> <p>There is evidence that after 5 years of treatment, the Spruce Budworm Early Intervention Strategy in Atlantic Canada is having positive effects. Treatments have kept budworm populations from rising to levels that would result in damage causing tree growth loss and mortality.</p>	<p>Approximately 30,000 ha of hot-spot treatments in 2020 with ongoing signs of success. Minimal forest defoliation and no mortality detected in 2020 surveys.</p> <p>In 2020, Newfoundland and Labrador treated 32,000 ha of forests for spruce budworm.</p>	<p>Continue early targeted intervention work, with actions including intensive monitoring efforts across the Atlantic region, applied research, communications, citizen science, and treatment of hot-spot populations in New Brunswick.</p>	<p>2025</p>
<p>Federal</p>	<p>Low Carbon Economy Fund (LCEF)</p> <p>Announced in federal Budget 2016 and Budget 2017 to support new provincial and territorial actions to reduce emissions, with a focus on new, incremental reductions while considering cost-effectiveness.</p> <p>One of the targeted sectors is enhancing carbon sinks and reducing greenhouse gas emissions in the forest sector.</p> <p>Under the LCEF, a \$1.4 billion Leadership Fund supports commitments by provinces and territories that have adopted the PCF, with each province or</p>	<p>The LCEF of Environment and Climate Change Canada launched in June 2017 with a call for initial submissions from provincial and territorial governments to the Leadership Fund (\$1.4B).</p> <p>By late 2019, Leadership Fund had approved almost \$200 million for efforts to increase stored carbon or reduce emissions in forests through efforts in British Columbia, Manitoba, Quebec, Prince Edward Island, and Northwest Territories. It had also supported use of forest harvesting residues for energy in Quebec.</p> <p>The federal government has put in place bilateral funding agreements with provincial/territorial governments for approved</p>	<p>Continue to complete and implement bilateral funding agreements under the Leadership Fund and transfer funds based on expenses incurred and funding agreements.</p> <p>Finalize funding agreements for forest related projects and implement executed agreements under the Low Carbon Economy Challenge of approved projects.</p>	<p>Budget 2017 specified the LCEF would operate 5 years to 2021-22.</p> <p>L’entente de financement a été prolongée jusqu’en mars 2024.</p>

	<p>territory receiving a specific funding allocation. The remainder of the LCEF funds support the implementation of the PCF and the Low Carbon Economy Challenge, in which projects are selected from among those submitted by provinces and territories, municipalities, Indigenous governments and organizations, businesses and not-for-profit organizations.</p>	<p>Leadership Fund projects and started to transfer funds based on expenses incurred and funding agreements. Implementation of funded projects continued throughout 2020.</p> <p>Forest industry projects related to fuel switching and/or fuel efficiency in mills and district heating were approved for funding in 2019 under the \$450 million Low Carbon Economy Challenge (Champions stream).</p> <p>Implementation of funded projects continued throughout 2020.</p>		
Federal	<p>Growing Canada’s Forests</p> <p>In the 2019 and 2020 Speeches from the Throne, the Government of Canada committed to using natural climate solutions to combat climate change, including planting two billion trees over the next 10 years. A commitment also outlined in the Minister Natural Resources’ mandate letter.</p> <p>This effort is part of an overarching \$3.9B approach to nature-based climate solutions to fight climate change.</p> <p>Nature-based climate solutions are actions to protect, manage, and restore natural areas, such as forests, wetlands, grasslands, and peatlands, to avoid and capture GHG emissions. Investing in nature-based climate solutions will be an important part of Canada’s mitigation strategy. Dedicated action will help these natural ecosystems function in a way to better store carbon.</p>	<p>The program was officially launched by the Minister of Natural Resources on December 14, 2020.</p> <p>On February 19, 2021, the Minister announced the next steps for implementation of the program. The program has issued two calls, one as an Expression of Interest to identify potential projects that can be completed within 2021-22, and the other as a Request for Information to hear from organizations about their vision and capacity to implement or contribute to large-scale, single or multi-year tree planting projects across Canada.</p>	<p>As the program moves forward and partners are secured for implementation, trees will be planted through a combination of: 1) afforestation, which is the creation of new forest cover on lands that were previously non-forested, and 2) reforestation, which involves the re-establishment of forests after natural disturbances. Tree will also be planted in urban or semi-urban areas.</p> <p>This initiative will permanently grow the overall size of forest in Canada by 1.1M hectares, an area equal to twice the size of Prince Edward Island. Most trees planted in urban areas and for restoration purpose will be permanent, while trees planted in forested areas will become part of Canada’s stringent sustainable forest management regime.</p>	2030

<p>Alberta</p>	<p>Enhanced forest growth and reforestation of legacy natural disturbance on forested public land.</p> <p>\$20 million is to be allocated to the project with 50% funded through Low Carbon Economy Fund (Leadership Fund).</p> <p>The Program was unable to accept the Low Carbon Economy Leadership Fund (LCELF) through a \$10 million in funding, Provincial funding remains in place. The programs total funding available at this time is \$10 million.</p> <p>Program promotes management interventions in areas of natural disturbances and increased coniferous planting supports the recovery of the coniferous components of forests, which then supports greater carbon sequestration.</p>	<p>Program has commenced under the management by the Forest Resource Improvement Association of Alberta (FRIAA).</p> <p>Program aims to treat approximately 4,300 ha through planting 6.0 million seedlings by 2023.</p> <p>Program timelines were extended to 2023.</p>	<p>Continued Implementation of the program.</p> <p>Proposed 2021 Treatment – 1,205 ha (subject to change depending on operational factors).</p>	<p>Completion expected in 2021-2023</p>
<p>Alberta</p>	<p>Alberta Mountain Pine Beetle Strategy</p> <p>Alberta Strategy targeted at reducing the spread and impact of the mountain pine beetle (MPB). MPB-infested stands show significant reductions in their ability to store carbon. This preventive program is aimed at reducing and slowing the MPB's impacts and potential eastern progression.</p>	<p>Level 1 Control Treatments (single tree)</p> <ul style="list-style-type: none"> Stems treated were either felled and burned, felled and peeled, or felled and chipped. <p>August 2017-August 2018: 106,005 stems treated² by the Province</p> <p>NOTE: 2017 estimate revised in 2019 reporting to include Forest Resource Improvement Association of Alberta (FRIAA) program treatments. 92,275 treated directly by the province and 13,730 treated through Forest Resource Improvement.</p> <p>Association of Alberta (FRIAA) programs.</p> <p>August 2018-August 2019: 135,495 stems treated in the Province.</p> <ul style="list-style-type: none"> In 2018 – 102,552 treated directly by the province and 32,943 treated through Forest Resource Improvement Association of Alberta (FRIAA) programs. 		<p>Ongoing</p>

		<p>August 2019-August 2020: 115,301 stems treated in the Province.</p> <ul style="list-style-type: none"> 2019 – 104,824 treated directly by the province and 10,477 treated through Forest Resource Improvement Association of Alberta (FRIAA) programs 		
Alberta	<p>Alberta Land-use Framework Planning</p> <p>The Land-use Framework (LUF) sets out a new approach to managing our province's land and natural resources to achieve Alberta's long-term economic, environmental and social goals. The LUF establishes seven new land-use regions and calls for the development of a regional plan for each. Currently 2/7 plans are approved.</p> <p>The regional plans dictate Land-use strategies that will influence carbon sinks in the province, establish new protected/conservation areas, and emphasize the need to sustain a vibrant forest sector.</p>	<p>Alberta saw the addition of 1,360,390 ha of new protected land in the boreal region in 2018:</p> <ul style="list-style-type: none"> Kazan Wildland Provincial Park (WPP) Establishment (570,822 hectares of new protected land for a total of 659,397 ha) Richardson WPP Establishment (264,727 ha of new protected land for total of 312,068 ha) Dillon River WPP Establishment (191,545 ha) Birch River WPP Establishment (331,832 ha) Birch Mountains WPP Expansion (by an additional 1,563 ha) <p>Combining conservation/protected areas with sustainably managed forest lands should yield more carbon mitigation than either measure employed alone.</p> <p>The Kitaskino Nuwenënë Wildland Provincial Park was established in 2019 (161,880 ha of newly protected land).</p> <p>2020 saw the establishment of no new additional parks or conservation areas.</p>	Continued development of uncompleted Regional Plans.	Ongoing
Alberta	<p>Caribou Habitat Recovery Program</p> <p>The purpose of the Program is to support the Recovery Strategy for the Woodland Caribou Boreal Population and the Recovery Strategy for the Woodland Caribou, Southern Mountain Population by providing funds for Eligible Activities. The Program is structured around projects that are made up of eligible activities</p>	<p>Restoration of legacy seismic lines (linear disturbance)</p> <ul style="list-style-type: none"> 87 km+ treated in 2017 203 km+ treated in 2018 290 km+ treated in 2019 Estimated at 270 km** to be treated in 2020 <p>** 2020 restoration target actuals to be calculated after restoration complete.</p>	<p>Continued Implementation of the program.</p> <p>Current Proposed Treatment 270 km in 2020</p>	Ongoing

	<p>aimed at the Program’s purpose which may include: planning, monitoring, evaluation, reporting access management planning, Indigenous Knowledge collection, etc. This includes activities that measure, track and report on project activities and caribou habitat conditions for project management and outcomes measurement purposes. Program is administered by the Forest Resource Improvement Association of Alberta (FRIAA).</p>	+Estimates updated due to revised tracking methodology		
British Columbia	<p>Forest Carbon Initiative (FCI)</p> <p>Launched in early 2017, the FCI is being delivered by the Ministry of Forests, Lands, Natural Resource Operations, and Rural Development (FLNRORD) to manage forest carbon and improve the sustainability of BC forests, communities and industry while mitigating the effects of climate change.</p> <p>The program invests in activities that generate greenhouse gas (GHG) benefits by increasing carbon sequestration including reforestation, fertilization, and tree improvement projects. This program also focuses on increasing utilization of forest waste and reducing slash pile burning to avoid emissions.</p>	<p>In early 2017, BC committed \$150 million to support the implementation of the FCI, demonstrating its support for the Pan Canadian Framework on Climate Change and Clean Energy (PCF).</p> <p>In late 2017, the federal Low Carbon Economy Fund (LCEF) announced support of \$140 million under the Leadership Fund. In March 2018, the agreement between the province of British Columbia and the government of Canada was finalized, which means a total of \$290 million in funding for eligible forest carbon investments from 2017/18 to 2021/22. In February 2020 this was extended to 2023/24.</p> <p>Key FCI activities implemented in 2019/20 and early 2020 include:</p> <ul style="list-style-type: none"> • Incremental reforestation and fertilization through the Forests-for-Tomorrow (FFT) program. • Continued investments in fibre utilization through the Forest Enhancement Society of British Columbia (FESBC), avoiding the burning of 780,000 m³ of fibre. • FCI reforestation projects planted 15M trees over approximately 9,500 ha, as well as an additional 25M trees in the spring of 2020. Planning, surveys, and prescriptions were also conducted, and seedlings were sown for future planting. • Fertilization of 17,000 ha on the Coast to increase growth and carbon sequestration. Site surveys and prescriptions were also 	<p>In 2020/21 and beyond, the province will continue to implement FCI activities aligned with the support provided by the LCEF Leadership Fund, including investments in alternatives to burning of wood waste and increased sequestration of carbon (reforestation, fertilization, utilization, tree improvement). The province will also seek to identify novel forest carbon activity types that yield positive GHG outcomes (e.g. forest health treatments).</p>	2023-24

		<p>completed for future application areas.</p> <ul style="list-style-type: none"> • Establishment of a Class A seed nursery to increase timber volume and carbon sequestration on the land base. 		
Manitoba	<p>Spatial simulation of carbon stocks in Manitoba’s peatlands</p> <p>Development of a spatial inventory of boreal peatland carbon stocks for the entire Province of Manitoba.</p>	<p>Initial spatial inventory completed for eastern and central Manitoba; result is a 30m pixel-size raster dataset of carbon stocks (in tonnes) in peatlands.</p>	<p>Expansion of peatlands carbon inventory into western and northern Manitoba. Improvements, ground data collection, and validation continues based on the rapid assessment protocol described above (Assessing carbon stocks in forested wetlands).</p>	Ongoing
Manitoba	<p>Manitoba major transportation route shelterbelts</p> <p>In early 2019, Manitoba began implementation of a large scale shelterbelt tree planting initiative along two sections of the TransCanada Hwy in Manitoba. Beyond carbon sequestration, this initiative is expected to provide additional co-benefits including the provision of public safety by reducing the number of highway closures and travel risks due to blowing snow, improved soil and water conservation, and enhanced esthetics, among many others</p>	<p>The initial phase of the project started in spring/ summer of 2020 with the planting of an eco buffer shelterbelt. Consisting of 760 (10 gallon pot sz. Conifers and 980 (2 gallon pot sz.) Shrubs totalling .8 km of trees (2 rows x 2.4 km per row) along Trans-Canada Highway</p> <p>This year functioned largely as a test year and a successful and efficient planting season is expected in the spring of 2021</p>	<p>Preparation work for the FY22 planting area is underway or complete, including removal of dead trees, soil preparation and incorporation of compost A total of about 38 km of row length remains to be planted in years 2 and 3 2 rows x 11 km per row = 22km (Potted stock) 1 row x 16 km = 16 km (Tree plugs/bareroot) A third row will be planted in 2023.</p> <p>Phase one completed.</p>	target of 21/22 and 2022/23
Manitoba	<p>Use of UAVs and Deep Learning for more efficient forest renewal survey and improved forest regrowth</p> <p>A \$75,000 fund was secured in 2018 through Manitoba government ‘Idea Fund’ (previously called Transformation Fund) for the purchase of a drone to capture high-resolution imagery from harvest cut blocks. This imagery is used in conjunction with Machine Learning/ Deep Learning techniques for individual tree detection and forest change monitoring from harvest cut block sites. This technology is expected to greatly enhance the way we manage our forests and contribute to improve growth, productivity and carbon sequestration.</p>	<p>Since the drone has been acquired in 2018, over 140 forest sites totalling of ~5,620 ha have been flown, the majority of which were on silviculture cut block sites. Deep Learning tools available in ArcGIS Pro and python are being used for individual tree species and crown detection as well as tree height determination. This information is used to determine if harvest sites meet tree regeneration success requirements and propose necessary mitigations to proactively ensure the sites are successfully regenerated by identifying failing sites sooner and taking action to get them back on track towards a new forest.</p>	<p>The target for 2021 will be to fly around 5,000 ha of cut block sites</p>	Ongoing

New Brunswick	Carbon sinks and offsets commitments under New Brunswick's Climate Change Action Plan	New Brunswick's Department of Energy and Resource Development has incorporated a process to estimate carbon supply into stand level growth and yield development. Carbon supply has been added as a dashboard indicator during potential forest strategy development evaluation.	Continue to identify opportunities for increasing forest carbon sinks as part of New Brunswick's Department of Energy and Resource Developments sustainable forest programs.	Ongoing
Northwest Territories	Multisource Vegetation Inventory	Joint project with the Canadian Forest Service to capture carbon relevant attributes in NWTs forest landscape. The methods are proven and 40% of the NWT forest land is now under this inventory.	To continue the inventory through completion by 2024 and complete stable assessments of both above and below ground forest carbon.	Ongoing
Prince Edward Island	PEI has committed to protecting 7% of its landbase by 2020 under the Pathway to Canada Target 1.	Last year 198.5 ha were added to our natural areas network, bringing the current total to 3.6%	PEI will continue land acquisition, private land conservation agreements and support for indigenous protected and conserved areas. It will also review public lands for areas that could be protected and contribute to the 7% goal. As of November 2020, PEI's protected area stood at 4.44% and a path to achieving 7% has been identified.	April 2021
Prince Edward Island	Launch of new Carbon Capture Tree Planting Program PEI has launched the new Carbon Capture Tree Planting Program, funded in partnership with the Federal Low Carbon Economy Fund. The program aims to create 285 ha of new forest over 4 years. The provincial Alternative Land Use Services Program (ALUS) will make one-time payments of \$650/ha to private landowners under this program.	Tree production in the provincial J. Frank Gaudet Tree Nursery has been expanded and the first planting is expected to begin Fall 2019. The program was advertised in spring 2019 and clients are currently being enrolled.	At the end of 2019, 17 landowners had planted 61 ha under this program.	2022/23
Québec	Increasing carbon sinks through afforestation and reforestation The Government of Quebec has obtained \$50 million in funding from the Low Carbon Economy Leadership Fund over five years to increase the number of carbon sinks through afforestation and reforestation of areas in addition to its regular program.	Three types of areas were determined: 1) Restoring the production of forests affected by the spruce budworm epidemic in the Gaspésie and Bas-Saint-Laurent regions. During the summer of 2019, 140 ha were reforested. Reforestation of 1,649 ha is planned by the end of the 2020 season. The planning for the sectors to be put back into production by 2021	1) Restore production in the sectors identified in the 2020 planning. Plan and restore production in the sectors for 2021. 2) Order the seedlings needed to restore production in 2020 by the end of 2018; plan and restore production in sectors for 2021.	The project will end in March 2023. The LCEF agreement has been extended to 2023-2024.

		<p>was completed and the seedlings ordered.</p> <p>2) Increase productivity of spruce-moss and Ericaceae forests. During the summer of 2019, 162 ha were reforested. The reforestation of 3,479 ha is planned by the end of the 2020 season and the planning for sectors to be back in production by 2021 is in progress.</p> <p>3) Afforestation of wild land in private forests. Reforestation of 2,162 ha is planned by the end of the 2020 season. Planning for the sectors to be back into production by 2021 was completed and the seedlings ordered.</p>	<p>3) Increased productivity of spruce-moss and Ericaceae forests.</p> <p>The \$50 million envelope aims to increase forest carbon sinks through the reforestation of areas not included in Quebec’s regular program.</p> <p>More than 14,000 ha of silviculture work will be done in public and private forests to enable the sequestration of 1.6 million tonnes of carbon by 2050.</p>	
Québec	<p>Québec’s Timber Production Strategy</p> <p>The fundamental aim of this Strategy is to produce more wood with the desired characteristics, at a competitive price, and based on profitable investments.</p> <p>One of the objectives is to “Help to increase carbon sequestration in the forest and in forest products.” One of the specific actions related to this objective is to “Identify the forest sector’s potential additional contribution to the achievement of Quebec’s greenhouse gas reduction objectives and targets.”</p>	<p>Quebec’s Timber Production Strategy project was in public consultation with partners and Indigenous communities in the summer of 2018. The final version of the Strategy was released in the fall of 2020.</p>	<p>Quebec’s Timber Production Strategy builds on several measures already in place (e.g. Leadership Fund). Once the Strategy is released, appropriate measures will be implemented.</p>	<p>Final version of the Strategy released in 2020.</p> <p>The regional strategies will be produced by the end of 2021.</p>
Québec	<p>Spruce budworm treatments on private and Crown land</p> <p>The objective of these treatments is to reduce loss in productivity and decrease mortality of lands affected by the epidemic compared to an untreated reference area.</p>	<p>Extent of damage caused by outbreak was estimated. Planning for spraying private wood lots was carried out. Spraying on Crown land was continued (began in 2009). Quantify early emissions of CO2 avoided.</p> <p>Quebec continues to combat the spruce budworm. In 2020, Quebec used aerial spraying to protect susceptible stands on approximately 90,000 ha of public forests and close to 18,000 ha of small private forests.</p>	<p>Continued mapping of spruce budworm defoliation. First round of spraying on private wood lots will be carried out in 2018. Spraying on Crown land will be continued.</p>	<p>Treatments will be ongoing until the end of outbreak.</p>

<p>Québec</p>	<p>Additional silviculture work to sequester carbon</p>	<p>\$75 million over five years has been announced, in addition to the regular budget of silviculture.</p> <p>The silviculture work will increase the productivity of Quebec’s forests, and thereby reduce GHG in the long term through carbon sequestration.</p> <p>The proposed silviculture work is:</p> <ol style="list-style-type: none"> 1) The conversion of total cuts into partial cuts; 2) The restoration of degraded forests; 3) The production of fast growing seedlings; 4) The return to production of stands in an epidemic context; 5) Closure of forest roads related to caribou. <p>One component of this funding enables external partners, including education and research forests, municipalities, and private forest development agencies, to carry out work.</p>	<p>Planning of the implementation has started. For the first two years, more than \$13 million has been allocated to projects.</p> <p>During the summer of 2019, 638 ha were reforested. Reforestation of 3,370 ha is planned by the end of the 2020 season.</p> <p>A \$33.3 million cut to this budget was announced in 2020 in the Implementation Plan for the 2030 Plan for a Green Economy. The Government of Quebec is evaluating opportunities to offset these amounts.</p> <p>If necessary, the area planned for silviculture work will have to be reassessed.</p>	<p>March, 2024</p>
<p>Québec</p>	<p>Additional silviculture work to sequester carbon and support knowledge development</p>	<p>An amount of \$82.2 million over six years was announced in the 2020-2021 budget speech, in addition to the regular budget dedicated to silviculture.</p> <p>The silviculture work will increase the productivity of Quebec’s forests, and thereby reduce GHG emissions in the long term through carbon sequestration.</p> <p>The proposed silviculture work is:</p> <ol style="list-style-type: none"> 1) Afforestation and reforestation in public and private forests; 2) Maintenance of plantations carried out as part of additional work to sequester carbon at the provincial (climate change action plan) and federal (LCEF) levels. <p>Knowledge acquisition work will also be carried out in three areas:</p> <ol style="list-style-type: none"> 1) Support the development of knowledge on the potential contribution of the forest sector and natural environments in mitigating 	<p>Work planning is underway.</p>	<p>March 2026</p>

		<p>and adapting to climate change;</p> <p>2) Support the development of knowledge on bioenergy from residual forest biomass.</p> <p>3) Develop and implement adaptation research programming - forestry</p>		
Québec	Development of knowledge and a tool adapted to the reality of Québec's forest sector	<p>\$5 million was announced in the 2019-2020 Budget Speech to develop knowledge and improve existing tools to maximize the forest sector's GHG reduction potential.</p> <p>This work will be carried out through a close collaboration within the Quebec government, to which will also contribute Québec's universities and other research institutes.</p>	<p>Implementation of agreements with partners to carry out knowledge development work is underway. Work is expected to begin in 2021.</p>	March 2024

PCF ACTION: *Increasing the use of wood for construction*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
Multiple	<p>Renewed support for Atlantic Woodworks Initiative:</p> <p>Atlantic Woodworks is a cooperative program led by the maritime Lumber Bureau with Support from Canada and 4 of Canada's Atlantic Provinces – New Brunswick, Newfoundland and Labrador, Nova Scotia and Prince Edward Island. It promotes wood as a preferred building material in Atlantic Canada.</p>	<p>Wood-based architectural design is celebrated, highlighted and promoted through workshops, special programs and building and development industry events.</p> <p>New in 2019, PEI has endorsed the Atlantic WoodWORKS program, and made a commitment of \$30,000 over three years to enhance the use of wood in construction, and the understanding of the values of wood construction by the construction industry and architects.</p>	<p>PEI's support for Atlantic WoodWORKS has been renewed for 2021.</p>	Ongoing
Multiple	<p>Investments in FPInnovations research</p> <p>As part of cost-sharing agreements, each year the federal and provincial governments invest in FPInnovations' forest management and sustainability research. This research focuses on the design, engineering and provision of large wood</p>	<p>In March 2017, the Quebec Ministry of Forests, Wildlife and Parks also announced the allocation of funds to FPInnovations, for a total of \$4 million over four years to pursue its national collaborative research program.</p>	<p>Quebec will continue to carry out FPInnovations projects in cooperation with its partners.</p>	March 2021

PCF ACTION: *Increasing the use of wood for construction*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
	structures and components for construction.			
Federal	<p>Green Construction through Wood (GCWood) program</p> <p>Budget 2017 announced \$39.8M to support projects and activities that increase the use of wood as a green building material in construction. The GCWood program supports Canada’s transition to a more wood-inclusive construction industry by funding projects that encourage:</p> <ul style="list-style-type: none"> • greater adoption and commercialization of wood-based products in the construction of innovative tall wood buildings, timber bridges, and low-rise wood commercial buildings • replication of demonstrated innovative non-traditional wood-based buildings and timber bridges • research that addresses the gap in technical information needed to facilitate revisions to the 2020 and 2025 National Building Code of Canada (NBCC) to allow tall wood buildings beyond the current 6 storey limit • advanced wood education and development of design tools 	<p>Calls for Expressions of Interest for tall wood buildings, low-rise non-residential buildings, and timber bridges have all closed as of April 2019. The program received 57 applications over the three calls requesting over \$100M in funding to construct nearly \$2B in projects.</p> <p>To date, the GCWood program has allocated \$34.4M through 21 CAs to organizations across Canada, leveraging over a \$1B in wood research and construction activity. This support has enabled key demonstrations of mass timber, both structurally and aesthetically, such as the series of mass timber buildings at Canadian Nuclear Laboratories in Chalk River, which will introduce innovative wood designs and technologies for the first time at a nuclear facility.</p> <p>GCWood has continued to support a Canadian wood education roadmap, including new curriculum development, development of supporting materials (course books, case studies, course modules, etc.) and assist colleges and universities to implement new programming and help close knowledge gaps.</p> <p>The program supported the critical research and development that enabled the allowance of tall wood buildings up to 12 stories in the 2020 edition of the National Building Code of Canada.</p>	<p>Finalize remaining agreements with the shortlisted demonstration projects, and prepare for announcements and communications products as the projects are built in the coming years.</p> <p>Continue to provide ongoing support for the development of advanced training/education curriculum, design tools, and technical information products.</p> <p>Support for preliminary R&D and code committee work for the inclusion of performance-based considerations in the revisions to the 2025 edition of the National Building Code of Canada.</p>	Funding supports activities for 4 years to 2021-22
British Columbia	<p>Increase the use of low carbon and renewable materials in all public sector infrastructure projects</p> <p>New projects align with existing government policy including:</p> <ul style="list-style-type: none"> • Requiring LEED Gold certification of new public sector facilities 	<p>Use of Low Carbon/Renewable Materials in Public Sector Infrastructure projects initiated.</p> <p>Engaged with regional, professional, and federal agencies, which led to an opportunity to collaborate with the Government of Canada on the Low-carbon assets through life cycle assessment (LCA²) initiative.</p>	<p>Continue to implement.</p> <p>Participate in the Government of Canada’s National Research Council LCA² initiative to investigate building materials and designs that offer both the lowest carbon footprint and the lowest total cost of ownership.</p>	Ongoing

PCF ACTION: *Increasing the use of wood for construction*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
	<ul style="list-style-type: none"> • The Climate Change Accountability Act/Carbon Neutral Government Regulation • The Wood First Initiative (which includes the Wood First Act and Wood First Program) <p>BC Procurement Strategy June 2018, commits government to creating a life cycle assessment framework to measure and report on embedded carbon in (some) building materials used in capital infrastructure projects.</p>			
British Columbia	<p>Forestry Innovation Investment (FII) Wood First Program</p> <p>The Wood First Program focuses on identifying and overcoming barriers in advancing the applications of wood-based products and building systems.</p> <p>Planning and delivery of the Wood First program is a collaborative effort involving the building construction and forest industries. Activities, under the Wood First program, are delivered primarily through third-party organizations under a cost-sharing framework between FII, the Federal Government and industry.</p> <p>For 2020/21, FII is providing approximately \$2.38 million to industry associations and research institutions to develop and deliver Wood First program activities.</p>	Ongoing	In 2019/20, 50 projects were converted to wood, resulting in an incremental \$63.1 million of influenced wood sales (100 percent of target).	Ongoing
British Columbia	<p>The Office of Mass Timber Implementation (OMTI)</p> <p>Established in Spring 2020, OMTI is a project office tasked with leading the coordinated deployment of policy levers and statutory authorities across various Ministries.</p>	<p>Since establishment, OMTI has completed extensive engagement with thought-leaders throughout the B.C. construction, development and wood manufacturing industries.</p> <p>The development of a draft strategy and rolling action plan is underway and will: leverage existing and</p>	Finalize and start down the pathway of the B.C. Mass Timber Implementation Strategy and Action Plan. OMTI will lead the coordination across key partners including government (federal, provincial and municipal), industry and academia to bolster the mass timber industry.	2022-23 (2-3-year phased approach)

PCF ACTION: *Increasing the use of wood for construction*

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	The mission of OMTI is to accelerate mass timber construction's transition from niche to mainstream to bolster growth both domestic and international markets.	previous efforts to support mass timber, define cross-government partnerships, and incorporate industry consultation findings. A proposed Mass Timber Advisory Council will champion and provide advice on the B.C. Mass Timber Implementation Strategy.	Establish the proposed Mass Timber Advisory Council and host inaugural meeting.	
British Columbia	<p>Early Adopter Program</p> <p>In December 2019, the BC Building and Fire Codes were amended to include new provisions that authorize 12-storey encapsulated mass timber construction in select BC jurisdictions. These amendments were made in alignment with pending National Building Code provisions for mass timber construction.</p> <p>The Program: All local government were invited to express interest in adopting these provisions early and eligibility criteria was established to prepare for pending new National Building code requirements.</p>	<p>In 2019, a call for expression resulted in 13 communities receiving approval to adopt the new provisions and authorize mass timber building. This kick-started BC's leadership in mass timber construction implementation.</p> <p>A 2020 call for expression resulted in seven new BC communities meeting eligibility criteria. The City of Vancouver has also early adopted the pending National Building code provisions for mass timber construction. There are now 21 early adopter communities in BC.</p>	Monitor implementation. Support local governments who have opted-in. Consider new opt-in requests as and when appropriate.	2023 (upon implementation of the National Building Code for Encapsulated Mass Timber Construction across all of BC when the next model code is adopted)
New Brunswick	<p>Wood in the Construction of Public Buildings and Infrastructure Policy (i.e. Wood First Policy)</p> <p>New Brunswick's Climate Change Action Plan commits to reduce provincial buildings GHG emissions and encourage the use of wood products in construction, including through building codes, standards and procurement policies.</p> <p>(2019 Forest Ministerial Progress Report) The Atlantic Woodworks Initiative is a cooperative program led by the Maritime Lumber Bureau with Support from Canada and the four Atlantic Provinces (New</p>	Continued commitment to increasing the use of structural and appearance wood products in construction, based on a favourable lifecycle evaluation, for all publicly funded new building construction and major renovations.	<p>The Wood First Policy will continue to be followed.</p> <p>New Brunswick's Wood in the Construction of Public Buildings Policy requires the use of wood in building structures when it is a cost competitive and practical building material. This policy led to the use of wood in the framing construction of modular classrooms and nursing homes; as well as the use of wood in constructing park structures, including a timber framed lodge at Mount Carleton worth approximately \$2 million.</p> <p>Government is working with a consultant to identify and evaluate wood as a construction</p>	Ongoing

PCF ACTION: *Increasing the use of wood for construction*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
	<p>Brunswick, Newfoundland and Labrador, Nova Scotia, and Prince Edward Island). It promotes wood as a preferred building material in Atlantic Canada through workshops, special programs and building and development industry events.</p>		<p>material in transportation structures.</p>	
<p>Ontario</p>	<p>Ontario’s Forest Sector Strategy and The Made-in-Ontario Environment Plan promote the use of wood for construction</p> <p>Increasing the use of Ontario timber in building, construction and renovation to reduce greenhouse gas emissions and increase long-term carbon storage.</p>	<p>Development of technical tools and resources, supporting education and training in wood construction and advancing mass timber building demonstration projects.</p>	<p>MNRF continues to host the Ontario Tall Wood Reference on its website where it has been downloaded over 1200 times.</p> <p>The buildings carbon calculator tool is in final stages of development.</p> <p>A Mass Timber Career Opportunities video is in development to showcase careers and help build the wood construction sector workforce.</p> <p>An Ontario Mass Timber Value Chain report is in development to support the Forest Sector Strategy action area related to Increasing Wood Use.</p>	<p>The Ontario Tall Wood Reference will continue to live on the Building With Wood webpage, and MNRF is committed to updating the publication, as well as the Ontario Wood Bridge Reference, by 2030.</p> <p>The Ontario buildings carbon calculator is expected to be released by May 31, 2021.</p> <p>The Mass Timber Career Opportunities Video will be completed and posted on the Ontario Government YouTube by May 31, 2021 then subsequently used for engagement with students and stakeholders.</p>

PCF ACTION: *Increasing the use of wood for construction*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
				The Ontario Mass Timber Value Chain report is anticipated to be completed and ready for publication by May 31, 2021.
Ontario	Establishment of a state-of-the-art, cross laminated timber facility in St. Thomas, Ontario	Site selection, engineering and material sourcing has been completed.	The MNRF has supported the establishment of Ontario's first certified Cross-Laminated Timber factory. The factory is currently nearing the end of commissioning.	Official manufacturing start is currently scheduled for April 1st, 2021.
Québec	Prefabrication wood program : optimization and automatization (PWPOA)	<p>This program support investment projects and studies by companies in the wood prefabrication sector. The program is accessible on the internet since November 1, 2019.</p> <p>Since the start of the program, four projects were approved for more than \$705,000 in total funding. These four projects represent a total investment of \$2.8 million, equivalent to a 4X leverage ratio.</p>	Dissemination of the program to the targeted clientele. Continuation of the program and monitoring of supported projects.	March 2022
Québec	<p>Wood Building Demonstration Program</p> <p>Implementation of the Technological Showcase for Wood Buildings and innovative wood solutions</p> <p>Program for applicants with an innovative wood construction project or an innovative wood solution in the non-residential or multi-family construction sector in Quebec.</p>	<p>Program launched in December 2016 with a budget of \$11 million by 2018.</p> <p>In 2018, the Program was enhanced in order to increase the number of mobilizing projects being carried out. As such, the program is now in effect until 2020. In addition, the list of eligible expenses has been enhanced and the admission rules have been adapted to projects submitted by municipalities and school boards.</p> <p>In 2019, the budget was increased for the first time to almost \$14.5 million. In 2020, the budget was increased a second time and is now close to \$16.3 million.</p>	Continuation of the program and monitoring of supported projects	March 31, 2021

PCF ACTION: *Increasing the use of wood for construction*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
		<p>Since the beginning of the program, 30 projects have been approved for a total of more than \$16 million in funding.</p>		
<p>Québec</p>	<p>Wood Charter</p> <p>The purpose of the Quebec Wood Charter is to increase the use of wood in non-residential and multi-family construction in Quebec.</p>	<p>Work to develop a new initiative that is even more ambitious than the Wood Charter.</p> <p>The document <i>Wood Charter: Taking Stock</i> was unveiled at Woodrise, an event held in Quebec City in September 2019. This review highlights many of the results achieved since the launch of the Wood Charter in 2013.</p> <p>The implementation of the Wood Charter measures is ongoing, including the following achievements in recent years:</p> <p>Measure 1: Government Leadership:</p> <ul style="list-style-type: none"> continued the work of the high-level Interdepartmental committee on wood construction, which ensures that departments and agencies set an example for the use of wood in construction projects funded in whole or in part by public funds; online launch of GESTIMAT, a tool used to quantify, analyze and compare greenhouse gas emissions from a building's structural materials. <p>Measure 2: Innovative Wood Construction:</p> <ul style="list-style-type: none"> continued the work of the advisory committee with the Régie du bâtiment du Québec; <p>Measure 3: Training and Promotion:</p> <ul style="list-style-type: none"> online launch of the new continuous training program on the use of wood in construction in November 2019. <p>Measure 4: Research and Innovation:</p>	<p>Announcement and implementation of the new, more ambitious initiative.</p> <p>Continue to implement Wood Charter measures until the adoption of the new initiative.</p>	<p>Ongoing</p>

PCF ACTION: *Increasing the use of wood for construction*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
		<ul style="list-style-type: none"> • online launch of the new Prefabrication wood program: optimization and automatization in November 2019. • Implementation in June 2020 of a measure for making environmental statements for a specific type of product intended for Quebec companies in the wood products industry. 		
Québec	Continuous training program on the use of wood in construction	<p>The aim of the Program is to enhance the ongoing training offered on wood and its use in construction.</p> <p>The total budget envelope of \$200,000 comes from the Green Fund.</p> <p>The program has been accessible on the internet since November 1, 2019.</p> <p>Since the beginning of the program, one project has been approved for total funding of \$30,000.</p>	<p>Continuation of the program and monitoring of supported projects.</p> <p>The goal is to further develop wood construction skills and thereby increase wood use in the province of Quebec.</p>	December 2020 (to be confirmed: possibility of extension to March 31, 2021)

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
Multiple	Biomass energy project in Saskatchewan	<p>The First Nations-owned Meadow Lake Tribal Council Bioenergy Centre will generate carbon-neutral green power using sawmill biomass residuals. It will be the first plant of its kind in Saskatchewan and is expected to produce 6.6 megawatts of baseload electricity. Funding of the project is made through the Investing in Canada Infrastructure Plan, Indigenous Services Canada, and Crown-Indigenous Relations and Northern Affairs.</p>		

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
Multiple	<p>Whitesand First Nation Community Sustainability Initiative (CSI)</p> <p>The CSI will replace diesel power generation by constructing and operating a combined heat and power cogeneration plant and a wood pellet plant. The initiative also includes forest management of the Armstrong Forest to maintain healthy forests as a carbon sink.</p>	<p>Since 2009, Whitesand First Nation, Ontario, and Canada have invested \$10.4 million into the CSI, for project development costs, which includes planning, environmental, engineering, and other professional services.</p> <p>Power Purchase Agreement (PPA) – a renewable 20-year PPA contract executed March 2018.</p> <p>Construction of the industrial park was completed in December 2017.</p>	<p>Start construction drawings and procurement in Fall 2019.</p> <p>Phase 2 proposed construction of the cogeneration plant and pellet plant to start in Spring 2020.</p> <p>Project delayed due to COVID.</p> <p>Completion of construction documents and procurements is ongoing.</p>	<p>Winter 2022-23: Bio-Economy Centre commissioning and operation.</p>
Multiple	<p>Development of the Wikwemikong First Nation 150,000 metric tonne wood pellet plant using forest biomass in Nairn Centre.</p>	<p>Global Marketing Plan, Forest Resource Assessment and Site Assessment completed.</p> <p>Class 30 business plan, engineering and environmental planning completed.</p> <p>Regional marketing assessment of Northern Ontario completed.</p>	<p>Completing Class 10 comprehensive business plan, engineering and environmental planning.</p> <p>Initiate development of fibre supply agreements, contracts, and letters of intent as appropriate.</p> <p>Project delayed due to COVID.</p> <p>Complete plant energizing plan with IESO and Hydro One.</p>	<p>Tentative construction in 2022-23</p> <p>Target for commercial operation July 2023.</p>

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
Federal	<p>Clean Energy to Reduce Reliance on Diesel in Remote Communities (CERRC) Program</p> <p>Budget 2017 provided \$220 million for this program, of which \$55 million is to support transitions from fossil fuel heating to bioheating.</p>	<p>Intake and review of bioheating projects submitted for funding. The CERRC program solicited proposals from rural and remote communities in the spring of 2018. The BioHeat stream received 42 eligible proposals through Round 1, including 10 that covered multiple streams (combined BioHeat and Deployment or Demonstration streams). 22 projects were shortlisted, 17 of which have signed contribution agreements. The total funding allocated to those 17 projects is \$14.5 million.</p> <p>A second call for applications for the CERRC closed in February 2019 and the BioHeat stream received 43 applications (including 12 multiples) with a total funding request of \$103.1 million. 11 projects are moving forward.</p> <p>Overall, 31 of 33 projects are located in Indigenous communities.</p>	<p>Most approved Bioheat projects will roll out over multiple years while some aim to be completed this year (FY 2019-2020).</p> <p>CERRC BioHeat funding is fully allocated.</p>	<p>Program funding provided for 6 years to 2023-24</p>
Alberta	<p>Alberta Carbon Offset System – Offset Generation</p> <p>The Alberta emission offset system is a regulatory program that enables facilities regulated under the Carbon Competitiveness Incentive Regulation (CCIR) to purchase and retire emission offsets to meet their emission reduction compliance obligations. CCIR will be replaced by an incoming Technology Innovation and Emissions Reduction Regulation that will be in place from January 1, 2020 going forward. Offset treatment and rules use are expected to remain constant between the two regulations.</p>	<p>Related Carbon offsets generated* that relate to forests and forestry.</p> <p>Protocol(s): Energy Generation from the Combustion of Biomass Waste/ Diversion of Biomass to Energy from Biomass Combustion Facilities 2017: 272,415 t CO₂eq offset credits generated (Estimate Revised in 2019) 2018: 245,831 t CO₂eq offset credits generated (Estimate Revised in 2020) 2019: 116,004 t CO₂eq offset credits generated 2020: TBD</p> <p>Protocol: Energy Efficiency Projects 2017: 273,146 t CO₂eq offset credits generated (Estimate Revised in 2019) 2018: 164,982 t CO₂eq offset credits generated (Estimate Revised in 2020)</p>	<p>Ongoing</p>	<p>Ongoing</p>

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
		<p>2019: 0 t CO₂eq offset credits generated 2020:TBD</p> <p>Protocol: Anaerobic Treatment of Wastewater Projects (Protocol estimate added in 2019) 2017: 9,951 t CO₂eq offset credits generated 2018: 13,010 t CO₂eq offset credits generated (Estimate Revised in 2020) 2019: 14,307 t CO₂eq offset credits generated</p> <p>*Number of credits generated may shift depending on query date of Alberta Offset Registry as credits need not be reported in the year of generation and offsets can also be cancelled after being declared.</p>		
Alberta	<p>Forest Industry Bioenergy and Bioproduct Projects</p> <p>Lafarge Cement will be testing the use of wood waste to replace natural gas in the production of cement.</p> <p>Tolko Industries in High level thermal plant went into production in October 2019 (heat only)-</p> <p>Tolko Industries built a new pellet plant in collaboration with Pinnacle Renewable Energy. The plant is linked to the Tolko sawmill and uses excess waste fibre. The plant was completed in 2020 and is expected to achieve full production in 2021.</p>	<p>Continue supported dialogue between forest company residual fibre producers and industries able to utilize material in bioenergy production.</p> <p>Tolko Industries in High level thermal plant went into production in October 2019 (heat only)-</p> <p>Tolko Industries built a new pellet plant in collaboration with Pinnacle Renewable Energy. Came into production in December 2020.</p>	<p>Continue to work with biomass proponents to utilize forest biomass to help reduce GHG emission from use of hydrocarbons.</p>	<p>Lafarge Cement: 2020</p> <p>Joint Tolko/Pinnacle pellet plant, 2020.</p>
New Brunswick	<p>Forest Biomass Policy</p> <p>This policy sets a framework within which companies are permitted to harvest forest</p>	<p>Continually Investigating large-scale projects for the production of bioenergy and/or biofuels. The raw input for these projects is intended to be a combination of forest biomass and low-grade pulp fibre,</p>	<p>One of the projects being investigated is expected to move forward. If market conditions are not favourable, the project will be put on hold until there is a viable opportunity.</p>	<p>Ongoing</p>

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
	<p>biomass in a sustainable manner.</p> <p>Material harvested under this program is used either as a direct input to energy production or is used to produce fuel (e.g. pellets).</p>	<p>filling a gap in the market for these products.</p> <p>There are more than twenty New Brunswick facilities which already consume residual forest products (either forest biomass or sawmill residues) for the purpose of energy production and/or producing fuels. These facilities range from small-scale “biobrick” producers to the University of New Brunswick’s central heating plant, which generates steam using forest biomass and other residual wood products.</p>		
Northwest Territories	2030 NWT Climate Change Strategic Framework and associated Action Plan.	The Framework’s Action Plan is directly linked to the 2030 Energy Strategy and the Energy Action Plan 2018-2021, and along with the NWT approach to carbon pricing, it will contribute to the goal of transitioning to a lower carbon economy.	2030 NWT Climate Change Strategic Framework 2019-2023 Action Plan provides NWT with a roadmap for addressing climate change.	Ongoing
Nova Scotia	<p>Development of Wood Energy heating solutions for public buildings.</p> <p>Create a new market for lower grade wood fibre from private woodlands for heating public buildings. Create and/or sustain local employment opportunities across NS. Substitute fuel oil imports with local renewable more carbon friendly fuels that mitigate GHG. Support sustainable forest management and strengthen the provincial wood supply chain, especially for private woodlot owners. Long-term reliable, stable and predictable heating costs for public building. Allow better economics for forest managers to undertake sustainable forest management and silviculture in woodlots.</p>	Many government departments are supporting investigation of potential to heat government building with woodchip-based heating systems.	<p>Assessment of potential installations in various regions of the province is underway. Procurement protocols and business case assessments are being developed and reviewed.</p> <p>In January 2019, a cross-departmental task group from 11 departments was established to identify suitable public buildings (including hospitals, schools, offices, correctional facilities) located across the province to convert older fossil fuel heating systems to wood chip heating systems. Sites were assessed against established criteria, including the age of the current oil heat system, heating requirements of the building, land availability, proximity to other buildings and truck routes. An open procurement process (phase 1) is planned for August 2019 for contracted operations and services model from private sector contractors to design,</p>	A phased implementation is planned over several years, building on lessons learned from phase 1 and adapting approach as needed for qualified public buildings province wide

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
			<p>construct, own and operate the heating plant and sells units of heat to the facility users. Incorporated the Nova Scotia Innovation Hub as a not-for-profit in March 2019. Co-hosted Atlantic BioCon (Atlantic Canada biorefining conference) in Halifax with BioNB.</p>	
Ontario	<p>A thermomechanical-pulp biorefinery (TMP-Bio) project.</p> <p>It will provide a means of converting wood into a wide range of new and potentially high-value products.</p>	<p>In September 2018, construction began on a largescale pilot biorefinery plant, which will become a focal point for the further development and commercialization of bio-based products made from wood.</p> <p>Commissioning of the new facility began in the second quarter of 2019 with a goal of processing 100 tonnes per year of hardwood chips. After the initial construction was completed, the TMP-Bio facility moved into production.</p>	<p>Continued testing to produce two basic product lines: cellulosic or 2G sugars, and a high-quality form of lignin referred to as H-lignin is on-going.</p> <p>The TMP-Bio Pilot Plant is fully operational and throughout 2020, work shifted to pilot plant optimization and production of various samples for research and application.</p>	<p>Commissioning phase is complete and testing phases are ongoing to provide valuable information for process control and product characterization.</p>
Ontario	<p>Biochar in Automotive Products</p>	<p>Project leading to the commercialization of forestry products derived bio char as performance enhancing additives for the manufacture of automotive parts. This project successfully tested, developed and commercialized a performance enhancing additive, composed of Ontario-sourced biochar, for the manufacture of automotive products. This additive is now used regularly in Woodbridge Foam's production line for automotive seating foam and other automotive interior parts.</p>	<p>Woodbridge is working to increase the biochar content of their family of products which has resulted in the need for further flammability testing.</p>	<p>Ongoing</p> <p>As a result of COVID-19, project timelines have been delayed by several months.</p>
Ontario	<p>Forest Biomass Action Plan</p> <p>Part of Ontario's Forest Sector Strategy includes the development of a Forest Biomass Action Plan to secure jobs and encourage sustainability in the forestry sector, while supporting</p>	<p>The action plan is in development with input from a working group composed of forest biomass supply chain partners. The action plan will support and encourage forest biomass use to achieve socio-economic and environmental objectives.</p>	<p>Develop and finalize the Forest Biomass Action Plan.</p> <p>Support implementation over a 5-year period.</p> <p>Development of the Forest Biomass Action Plan is in progress.</p>	<p>2026</p>

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
	<p>economic development using forest biomass (mill by-products and underutilized forest biofibre).</p>		<p>In partnership with the federal government, Ontario is supporting CRIBE’s 30:30 project which will create an open-sourced web tool to optimize the forest biomass value chain, increase the use of forest biomass and promote investment in the bioeconomy.</p> <p>CRIBE also launched the Nextfor High Performance Lignin Challenge Expression of Interest in spring 2020 as a result of its Lignin Commercialization Forums which gathered value chain feedback on the state of lignin product development in Canada and Ontario. Four full responses were submitted for \$1M in project funding. Successful projects are expected to begin in early 2021.</p> <p>These initiatives further advance the goals of the forthcoming Forest Biomass Action Plan and broader Forest Sector Strategy.</p>	
<p>Ontario</p>	<p>Haliburton BioChar commercialization of organic carbon production from wood fibre product</p>	<p>Pilot plant effectively demonstrated the feasibility of the process to produce organic carbon from wood for use in filtration and purification applications or as an industrial additive substitute for petro-chemical produced carbon black.</p>	<p>Working on quality improvements to meet client specifications.</p> <p>Over the next several months, Haliburton plans to enhance its research and development for pyrolysis and post-processing to increase production rates of its biochar and targeted quality for end users.</p> <p>Pilot plant effectively produced target volume of biochar that met all requirements for downstream processing, suggesting its use in high value products.</p> <p>Due to COVID-19, schedules and development in research have been altered, affecting overall progress. With new COVID</p>	<p>Ongoing</p>

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
			regulations in place, project timelines have been pushed back several months.	
Ontario	The Made-in-Ontario Environment Plan promotes the use of renewable forest biomass. For example, in the steel industry and as heating fuel for northern, rural and Indigenous communities.	Support establishment of waste wood heating hubs and support the Canadian Carbonization Research Association.	Supported the creation of FPInnovations' Solid Wood Bioheat Guide for rural and remote communities in Ontario. Supporting community led bioheat initiatives. Supporting value chain optimization of forest biomass feedstocks between the forest sector and other industrial users. Supporting individual initiatives using forest biomass to co-fire with coal as a pathway to net-zero carbon by 2050. Coordinate actions across government to improve the business and policy environment for biofuels produced using forest biomass through the Ontario Bioheat Initiative.	Ongoing
Prince Edward Island	Expanding the use of biomass heat in public buildings PEI is expanding its use of biomass heat in public buildings through awarding a tender for an additional 17 buildings (over and above the 29 currently heated by biomass). To ensure wood harvested for this purpose is done in accordance with PEI's forest management guidelines, a forest auditor has just been hired to complete pre- and post-harvest inspections.			Ongoing
Québec	2018-2023 Development Strategy for Quebec's Forest Products Industry The main objective of the development strategy is to enable this sector to remain competitive and to contribute more to the prosperity of	June 2018: Announcement of the Strategy with an initial budget envelope of \$827 million. In 2018-2019: Dissemination of the Strategy to partners and the public, setting up a framework for monitoring, evaluating and reporting on the Strategy	Continuation of the implementation of the measures provided in the Strategy. Development of a new Strategy to be announced in 2021.	2023

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
	<p>Quebec and its regions by supporting businesses in the innovation, modernization and development of new products and markets that will ensure that plants continue to operate. It is therefore meant to increase wood manufacturing to create wealth and to contribute widely to the fight against climate change.</p>	<p>(indicators and targets for evaluation) and implementation of the measures provided.</p> <p>November 2019: Publication of a review of the Development Strategy for Quebec’s Forest Products Industry and announcement of an enhancement to the strategy over the next few years with more ambitious measures, namely to make the forestry sector a key player in the fight against climate change.</p> <p>November 2020: 95% of the strategy’s measures have been implemented and 13% have been completed.</p> <p>The Strategy contains 11 objectives and 43 measures to address the various challenges facing the forest products industry. These revolve around five areas of intervention that are designed to enable this sector to remain competitive and to contribute more to the prosperity of Quebec and its regions, namely:</p> <ul style="list-style-type: none"> • innovation; • modernization and improvement of equipment and processes; • regulations and public policies; • the business environment; • markets. <p>Overall vision encompassed in this strategy: By 2023, the forest products industry:</p> <ul style="list-style-type: none"> • is a source of pride and a creator of wealth for Quebec’s society; • is a world leader in wood fibre products that are the result of sustainably managed forests; • adapts, diversifies, modernizes and reinvents itself to keep up with global economic changes; and contributes, through its various sectors, to the reduction of greenhouse gases (GHG) and plays a key role in the fight against climate change. 		

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
Québec	<p>Wood Innovation Program (WIP)</p> <p>The program is aimed at stimulating investments in innovative projects in the manufacture of forest products. This support is in the form of financial aid for studies or investment projects.</p>	<p>2020: Fourth increase of funds allocated to the program to reach a total budget of \$135.5 million until 2024.</p> <p>2019: Third increase of funds allocated to the program to reach a total budget of \$120 million until 2024. The additional budget also allows companies in the forest products industry to realize projects with non-traditional partners, for example in the metallurgy or plastics industries, to accelerate research and development and commercialization of new products.</p> <p>The Government of Quebec's contribution is a key stepping stone to generate strategic investments from the forest products industry. To date, more than \$102 million in grants awarded, have generated total investments of \$764 million (6.4 times higher).</p> <p>These projects involve all sectors of the forest products industry: pulp, paper and bioproducts, panels, lumber, wood construction and bioenergy.</p>	Continuation of the Wood Innovation program and monitoring of supported projects.	March 2024
Québec	<p>Innovation Platform</p> <p>The objective of the platform is to support and accelerate the development of a new generation of panels and engineered wood composite products. The platform will support manufacturers from the product design phase through pre-marketing to the pilot manufacturing phase.</p>	<p>Announced in May 2017, the Government of Quebec invested \$4 million to promote innovation, diversification and competition in the panel industry.</p> <p>Since the beginning of the program, 11 projects have been approved for a total of \$2 million in funding.</p>	Continuation of the implementation of the innovation platform and its associated projects.	March, 2026
Québec	<p>Residual Forest Biomass Program</p> <p>The Residual Forest Biomass Program is aimed at reducing</p>	Since April 1, 2018 and as of October 1, 2020, 86 projects have been supported for \$17 million in funding.	Continuation of the program and monitoring of associated projects.	Program in effect until March 31, 2021, or until the budget is

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
	GHG emissions and fossil fuel consumption by funding projects involving energy conversion to residual forest biomass.			fully committed.
Québec	Support for innovative initiatives in pulp and paper plants	<p>In November, 2016, the Ministry of Forests, Wildlife and Parks announced the allocation of two financial assistance packages to companies in the pulp and paper sector of the Outaouais region, for implementation of innovative technologies:</p> <p>Allocation of financial assistance to Papier Masson WB Ltée. for the implementation of a new process in the production of wood fibre used in the manufacture of wood-plastic composite used in the manufacture of various products, including interior car doors panels.</p> <p>Allocation of financial assistance to Fortress Specialized Cellulose Inc. for the installation of a new system that will use birch wood to produce pulp for chemical processing, an ingredient used in the manufacture of many products used daily, including clothing, automobile parts and medical equipment.</p> <p>Several projects are also supported through the Wood Innovation Program of the Ministry of Forests, Wildlife and Parks (see above).</p>	Completed	Completed
Québec	Tax credit to support the production of pyrolysis oil from residual forest biomass	<p>The credit, set at \$0.08/L, came into effect in April 2018. It will allow for a transition once a Quebec regulation on minimum biofuel content comes into effect.</p> <p>The Quebec Economic Plan released in March 2018 forecasts a financial impact of \$6.9 million over five years for this tax measure.</p>	Application of the tax credit.	The tax credit will end March 31, 2023.

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
Québec	Tax measures to promote the production of biofuel in Quebec	<p>As part of the Quebec Economic Plan released in March 2018, the Government announced that it would extend the tax measures ending March 31, 2018.</p> <p>The terms of these measures have also been amended to offer tax credits corresponding to the following fixed amounts:</p> <ul style="list-style-type: none"> • \$0.03/L for first-generation ethanol; • \$0.16/L for cellulosic ethanol; • \$0.14 /L for biodiesel. <p>This new approach takes into account biofuel performance in reducing GHG emissions. For the forest industry, producers of cellulosic ethanol from forest biomass will be able to better predict their incomes thanks to the fixed amount provided by the tax credit.</p> <p>These new terms provide for a transition until a Quebec regulation on minimum biofuel content comes into effect. The government estimates that the extension of these tax credits will represent tax assistance of more than \$34 million over five years for Quebec producers.</p>	Application of tax measures.	Terms effective April 1, 2018 to March 31, 2023.
Yukon	Fuel Abatement, Biomass and Climate Change Implementation	<p>A new interdepartmental Yukon Government working group was set up in spring 2020 to collaborate on harvesting and biomass supply opportunities.</p> <p>The working group has coordinated the development and review of fuel abatement tenders and facilitated harvesting opportunities for forestry clients.</p> <p>With these projects, wood volume would be available for the industry and biomass industry would have fibre.</p>		Ongoing

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
		<p>Forest Management Branch and Highways and Public Works have partnered to explore the feasibility and model for a timber storage or sort yard to improve opportunities for management of the biomass supply chain.</p> <p>Forest Management Branch is entering a 2 year partnership with FP Innovations to focus on biomass feedstock procurement, processing, quality and storage.</p> <p>Economic Development is leading a study on the lifecycle analysis, benefits and growth of Yukon’s biomass industry.</p> <p>Wildland Fire Management has fuel abatement projects underway south of Whitehorse. This wood volume will be available for the biomass industry.</p> <p>Highways and Public Works has launched a Green Infrastructure Program for green energy initiatives (retrofits, biomass, other renewables).</p>	<p>The project will be conducted in 2021-22 and will improve the certainty of wood supply for YG and allow the wood fibre fuel market to mature.</p> <p>This project will be completed in 2021.</p> <p>This project will be completed in 2024.</p> <p>This project will be completed in 2022.</p>	
Yukon	Funding of First Nations and Community Projects	<p>Yukon Government’s Energy Branch has agreements with First Nations in Yukon to assist with biomass projects and opportunities in some communities.</p> <p>1.) Kluane First Nation Kluane First Nation Refurbishment Project: Energy Branch has issued a Transfer Payment Agreement to KFN to complete basic repairs on their district heating system.</p> <p>Renewable Energy Options Assessment: Energy Branch has issued a contract to CBER to evaluate if, and how, the geothermal resource in Burwash Landing can supplement the use of biomass for heat.</p>		Ongoing

PCF ACTION: *Generating bioenergy and bioproducts*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
		<p>2) Champagne Aishihik First Nation: Takhini Hall Biomass District Energy System Design: Energy Branch has issued a contract to BEngineering to complete detailed design for a district heating system in the CAFN Takhini Subdivision.</p> <p>CAFN District Heating System Deployment Project: Energy Branch has made a soft commitment to provide \$100,000 to CAFN to operationalize the detailed design they have commissioned.</p> <p>3) Vuntut Gwichin Old Crow Harvest Planning: Energy Branch has issued a Transfer Payment Agreement for VG to complete forest inventory work to inform the development of their biomass district heating system.</p> <p>4) CNLP Beaver Creek CHP Feasibility Assessment: CNLP (aka White River First Nation Development Corporation) wants to complete a forest resource assessment and determine if sufficient biomass is available to support the deployment of a biomass CHP system in Beaver Creek.</p>		
Yukon	Our Clean Future; A Yukon Strategy for Climate Change, Energy and a Green Economy	Approved in 2020, the Our Clean Future Strategy outlines greenhouse reduction priorities and mitigations/adaptations for the impact of climate change in Yukon.	<p>2021-2022 work includes participating in the National Forest Inventory monitoring program in 2022 to gather information about forest carbon stocks, potential biomass energy supply, pest and forest fire risks, and climate impacts on Yukon's forests.</p> <p>Our Clean Future outlines priorities up to 2030 to address climate change, meet energy needs and build a green economy.</p>	Ongoing

PCF ACTION: *Advancing innovation in GHG-efficient forest management practices*

JURISDICTION	ACTIVITY	STATUS / ACCOMPLISHMENTS	NEXT STEPS / TARGETS	END DATE / TARGET
Alberta	<p>Alberta Innovates - Alberta Bio Future(ABF)</p> <p>ABF is aimed at diversifying the provincial economy and accelerating growth of Alberta’s bioindustrial sector by taking advantage of emerging opportunities. ABF is focused on increasing sustainability and reducing our carbon footprint by promoting use of Alberta’s renewable resources. ABF provides funding in three strategic priority areas: research and innovation, product and technology commercialization, and equipment utilization.</p>	<p>Alberta Bio Futures in 2020 is currently supporting over 60 active forest, forestry and woody biomass related projects with associated total project funding over \$35 000 000.</p> <p>Total project funding refers to total value of the projects including ABF contributions, in-kind contributions, and other funding sources.</p>	<p>No new calls for applications expected</p>	<p>December, 2020</p> <p>Program being phased out</p>
Alberta	<p>Emissions Reduction Alberta (ERA)</p> <p>ERA is a not-for-profit corporation funded by the Government of Alberta that works with the government, industry and innovators to accelerate development of innovative technologies that reduce GHG emissions.</p> <p>Biological Resource Optimization is one of the focus areas for ERA investment which focuses on projects that address biological GHG emissions, including areas such as agriculture, forestry, and waste management.</p> <p>Food, Farming, and Forestry Challenge - Emissions Reduction Alberta (ERA) – Launched in 2020</p> <p>Establishes a \$40 million dollar fund aimed at funding the development of innovative solutions for GHG emissions mitigation, abatement, and sequestration across Alberta’s food, farming, and forestry industries.</p>	<p>Current Active forests and forestry related projects include:</p> <p>Multi-site Cement Industry Low Carbon Fuel Implementation and Supply Chain Optimization.</p> <p>Renewable Transportation Fuel Demonstration Project</p> <p>Kraft Pulp Mill Flue Gas Energy Recovery Project -Alberta-Pacific Forest Industries Inc.</p>	<p>In Progress</p> <p>New calls for funding initiated in 2020</p>	<p>Ongoing</p>

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British Columbia	<p>Forest Biomass Supply Information System</p> <p>Development of a web-based, GIS enabled system to more accurately estimate residual biomass availability at regional scales throughout the province to support high-value bioproduct development.</p>	Under development. TSA level analysis underway.	March 2020 beta-version complete.	March 2022
Manitoba	<p>Short-rotation woody biomass afforestation trial at Cook Creek, near Birds Hill for carbon sequestration and climate change mitigation</p> <p>Since 2011, Manitoba Forestry branch, CFS and UBC have been monitoring carbon sequestration potential from short-rotation forestry plantation</p>	<p>Hybrid poplar clones were planted on 25 hectares on an agricultural soil near Cooks Creek, Manitoba (HP11) in May of 2011 by the Canadian Wood Fibre Centre (CWFC) and the University of British Columbia in collaboration with Manitoba Forestry branch. The plantation site is equipped with an eddy-covariance (EC) instrumentation to measure CO₂ fluxes above the plantation in conjunction with other climate variables (net radiation, precipitation (P), soil moisture content, wind speed, soil and air temperature). Results suggest that the site quickly shifted from a carbon source in year 1 and 2 to a carbon sink thereafter. The quick transition from C source to sink is attributable to the fast-growing attributes of hybrid poplar clones used for the experiment</p>	The CO ₂ flux measurement instrumentation has now been retired but the site will continue to be monitored to support growth, yield and carbon storage modelling.	September 2020
Ontario	<p>Sustainable Growth: Ontario's Forest Sector Strategy</p> <p>This strategy presents a 10-year plan to grow Ontario's forest sector, create opportunity for Ontario families, support industry and encourage innovation and new investment, while ensuring the sustainability of Ontario's forests. The strategy includes measures to increase wood use, including through the production of bioenergy and bioproducts and wood construction.</p>	<p>The Strategy was first announced in September of 2018 and was followed by 27 engagement sessions with Indigenous leaders, municipalities and industry throughout 2018-2020. Feedback from the public was sought through the Environmental Registry of Ontario. The strategy provides 38 broad goals under four pillars of action:</p> <ol style="list-style-type: none"> 1. Promoting stewardship and sustainability; 2. Putting more wood to work; 3. Improving Ontario's cost competitiveness; and, 	<p>Plan and track implementation through the establishment of a Forest Sector Strategy Advisory Committee, identification of Key Performance Indicators and development of a project tracking system.</p> <p>The Strategy was finalized in August 2020.</p> <p>As the strategy moves towards implementation, various actions around the Putting More Wood to Work pillar are in the early stages of development. With support from Ontario, the Centre</p>	2030

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	The strategy works in conjunction with the Made-In-Ontario Environment Plan.	4. Fostering innovation, markets and talent Through these pillars, the Forest Sector Strategy will contribute towards the climate change resilience and adaptation goals of the Pan-Canadian Framework.	for Research & Innovation in the Bioeconomy (CRIBE) has developed an Economic Fibre Supply Model that will help investors and communities identify options for expanding existing forest production and finding new markets.	
Prince Edward Island	The Federation of Agriculture examined opportunities to reduce the GHG emissions, or increase carbon storage, in the agricultural sector in Prince Edward Island. They evaluated a suite beneficial management practices which they have judged to be most likely to be effective in reducing GHG emissions from the agriculture sector. They came back with BMP which will be field tested this coming field season. The program was funded under the Low Carbon Economy Fund. 1. Nutrient Stewardship 2. Conservation cropping 3. Energy efficiency 4. Feeding strategies for cattle 5. Performance tracking and cattle sorting improvements 6. Feeding technologies and innovative techniques to improve true feed efficiency 7. Dairy production systems, including milking technology 8. Food loss in agricultural production and post-harvest handling and storage.			
Saskatchewan	Assisted Migration Trial The trial is testing the performance of different Jack Pine provenances under moisture stressed conditions. The intent is to ensure a resilient forest under moisture stressed conditions expected from climate change	Trial sites were established in 2013 and 2014 in the Canwood, Nisbet, and Fort a la Corne island forests. Two additional stand level trials were established at Chitek Lake and Beauval in 2017. In 2020 the original three trials were measured and assessed for growth and survival.	To collect information on performance of individual provenances every 5 years to determine which provenance would be best suited to planting on similar sites. The Chitek Lake and Beauval sites are scheduled for assessment in spring 2021.	2050
Saskatchewan	Forest Management Planning	Five approved forest management plans which have a section which	Upcoming FMP Targets: Approve 1 forest management plan	Spring 2021

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	<p>Forest Management Agreement holders are legally required to address how climate change will impact their ability to achieve their management targets.</p>	<p>addresses the impact of climate change on their ability to achieve the targets set out in the plan.</p> <p>One newly approved FMP in late 2019. Another FMP is scheduled for approval in 2021.</p>		