

Transitioning to a Low-Carbon Economy - New Brunswick's Climate Change Action Plan Progress Report 2022: Detailed SummaryA

Since its release in December 2016, the provincial government has been working to implement *Transitioning to a Low-Carbon Economy, New Brunswick's Climate Change Action Plan*. The main [Progress Report](#) includes highlights from a number of individual actions. The following report is supplementary to the Progress Report.

It includes a detailed summary of all 118 actions, their lead provincial government department, status and a description of the work completed. There are two types of actions that are identified as complete: 1. Actions where a clear measurable deliverable was identified as part of the action and this deliverable has been attained within the five-year timeframe of the Action Plan and 2. Actions where no clear deliverable was identified, but the volume of work completed over the five years of the Action Plan is significant enough to consider it complete for the purposes of the Action Plan, and the action will continue to be part of everyday government operations. Those identified as Not Complete represent actions where, for a number of reasons, the intended outcomes of the actions could not be completed within the five-year timeframe of this plan. It does not mean that there was a lack of action taken, but that actions either had a longer timeline than the life of the Action Plan or managing across multiple priorities meant that certain action priorities were shifted.

Also included in this report is an overview of the GHG reductions from the implementation of this Action Plan, New Brunswick's GHG emissions intensity (GHG/GDP) and the National Greenhouse Gas Inventory Report data for New Brunswick which outlines the latest available data for New Brunswick's annual GHG emissions. New Brunswick's annual emissions are broken down by sectors showing the trend of emissions and the percentage each sector contributes to the overall provincial GHG emissions.

PROVINCIAL GOVERNMENT LEADERSHIP

Role of the provincial government in leading change

- 1** *Establish a committee of Cabinet dedicated solely to the issue of climate change, chaired by the Premier, to oversee the implementation of the action plan.*

Status: Not Complete **Lead: Executive Council Office**

Although a Cabinet Committee of the Legislature was not created, an all-party Standing Committee on Climate Change and Environmental Stewardship was created in 2020. The oversight of the Committee helps to ensure that the necessary focus is placed on climate change action.

- 2** *Introduce a Climate Change Act to declare New Brunswick's commitment to addressing climate change mitigation and adaptation; to provide the authority to implement a carbon pricing mechanism; to establish a climate change fund with authority to spend proceeds; to establish industrial emissions limits; and to provide transparency and accountability.*

Status: Complete **Lead: Environment and Local Government**

The Climate Change Act was introduced in December 2017 and proclaimed in the spring of 2018. Amendments to the Act to enable the regulation of large emitters through the Output-Based Pricing System were passed in March 2020. Regulations to support the Output-Based Pricing System came into force in the summer of 2021.

3 *Require climate change, both GHG emissions and climate change adaptation, to be considered during the development of all Memorandums to the Executive Council (MECs).*

Status: Not Complete Lead: Executive Council Office

The Climate Change Secretariat has been working with Departments to increase the awareness around climate related issues and their influence on policy development. The Secretariat will continue to work with the Executive Council Office to explore ways to ensure that climate considerations are being addressed during policy development and in the development of Memorandums to the Executive Council.

4 *Include in the mandate letters to all Ministers and Crown corporations the requirements to: a. consider climate change in all decision-making; and b. assume responsibility, as appropriate, for GHG reduction and climate change adaptation for specific economic sectors related to the department or corporation.*

Status: Not Complete Lead: Executive Council Office

The provincial government issued Mandate letters to Crown corporations in 2020-2021 and 2021-2022, which included directions to be a contributor to the New Brunswick Climate Change Action Plan. The Crown corporations included: The New Brunswick Research and Productivity Council, Opportunities New Brunswick, NB Power, New Brunswick Community College (NBCC) /Collège communautaire du Nouveau-Brunswick (CCNB), Service New Brunswick and the NB Liquor Corporation. The Mandate letters included directions to Crown corporations to contribute to the New Brunswick Climate Change Action Plan.

CCNB uses ENERGY STAR Portfolio Manager tool to monitor the energy consumption of the facility's buildings. CCNB's Climate Change Implementation Plan is currently being developed. Recognizing the need for organizational change to address climate change, CCNB has incorporated an outcome on climate change into its Strategic Plan 2022-2027, effective April 1, 2022.

NBCC developed a Climate Action Strategy 2022-2024 that recognizes the potential for the college to increase its social and economic impact in this important area and is built on the following pillars: 1) Education and Academic Programming; 2) Applied Research and Innovation; 3) Facilities and Administration; 4) Partnerships and Integrated Engagement.

5 *Lead by example on climate change through actions and decisions by developing the most effective and efficient tools (policy, legislation, incentives, disincentives, financing) to address climate change.*

Status: Complete Lead: All

This action is at the core of the provincial government's response to climate change. In 2021, the provincial government made a commitment to complete 75 per cent of the actions in the plan by March 31, 2022. By prioritizing climate change and the implementation of the actions in the Action Plan, the provincial government has met and exceeded its commitment.

6 *Ensure the Climate Change Secretariat has the power, authority and resources to:*

- a. coordinate, measure and report on GHG emissions reductions, adaptation achievements and implementation progress directly to the Cabinet committee, in cooperation with government departments and Crown corporations;*
- b. establish a multi-stakeholder climate advisory council as part of a new robust engagement model;*
- c. manage the continued engagement with provincial partners including municipalities, First Nations, academia, the private sector and NGOs as well as and federal, provincial, territorial and international jurisdictions on climate change matters;*
- d. coordinate the gathering and dissemination of information relating to climate change;*

- e. *facilitate innovation and research, and demonstrate what is possible through best practices related to climate change; and*
- f. *lead the development of public awareness and education programs on climate change.*

Status: Not Complete Lead: Environment and Local Government

- a. New Brunswick's greenhouse gas (GHG) emissions are reported annually by Environment and Climate Change Canada. In January 2022, the Climate Change Secretariat (the Secretariat) presented to the Standing Committee on Climate Change and Environmental Stewardship about New Brunswick's GHG emissions and adaptation action to set the context for a renewed Climate Change Action Plan,
- b. A multi-stakeholder climate advisory council has not been established.
- c. The Secretariat continues to engage with an extensive group of stakeholders and First Nations to inform government's climate action response. The Secretariat has strong working relationships across all levels of government and participates in several federal, provincial, and territorial committees.
- d. Climate data is regularly updated and shared with stakeholders and the public.
- e. The Secretariat has a strong network within the research community and works with partners to facilitate innovation and research and demonstrate what is possible through best practices related to climate change. A great deal of this work is funded through the Environmental Trust Fund.
- f. The Secretariat has developed a campaign to educate New Brunswickers about the causes of climate change, how it's impacting the province and what New Brunswickers can do to participate in solutions.

Education and Awareness

7 *Develop a bold and comprehensive communications strategy to educate New Brunswickers about the causes of climate change, including the linkages between human activity and climate change, and identify opportunities for all New Brunswickers to participate in solutions. The approach should include partners to enable similar efforts and messages to be delivered outside of government.*

Status: Complete Lead: Environment and Local Government

The provincial government has developed a communications campaign to educate New Brunswickers about the causes of climate change, its impact on the province and identifying opportunities for New Brunswickers to participate in solutions. The campaign includes various communications materials such as a new website focused on climate change in New Brunswick, infographics, animated videos and social media materials.

The campaign will be launched in phases throughout 2022-2023.

8 *Develop a central repository for different types of climate information. The information should be easy to access, understand and interpret. An outreach approach will be developed to ensure that partners are aware of the information and its value.*

Status: Complete Lead: Environment and Local Government

The provincial government engaged with the federal government and the other Atlantic provinces to discuss the creation of an Atlantic Climate Data Hub. CLIMAtlantic was incorporated, launched, and fully operational at the end of 2021.

CLIMAtlantic is responsible for sharing climate information, engaging with stakeholders and the public, and delivering climate change adaptation services to New Brunswickers in an effort to achieve climate literacy, best inform decision-making at all levels, and build the province's collective resilience to the impacts of climate change. CLIMAtlantic will act as the central repository for the latest climate information, science and data that will be publicly available in an easy-to-understand format. Through an expansive outreach and engagement initiative, CLIMAtlantic will inform partners of the climate change information and its value.

9 Incorporate climate change into education at all levels, including experiential learning and connecting students with climate change initiatives in their local communities

Status: Not Complete Lead: Education and Early Childhood Development

The Department of Education and Early Childhood Development's (EECD) Anglophone and Francophone sectors work closely together to integrate climate change into the New Brunswick education system and remain committed to incorporating climate change into education at all levels.

To further support teachers in climate education, the provincial government has created tools and continues to support and provide opportunities for professional development. For example, climate change companion documents have been created in the Anglophone sector to support teacher professional learning and lesson planning for climate literacy. EECD's Anglophone sector has also created and launched a collaborative SharePoint for teachers, including bilingual climate change education resources, indigenous perspectives, grant opportunities and professional learning opportunities. EECD's Francophone sector has also created a similar online collaborative space that includes climate change educational resources for teachers and students.

In October 2019, climate education, energy awareness and sustainability topics were embedded in the Anglophone sector's renewal of the science curricula for Grades 3–10. In the Francophone sector, teachers were also encouraged to use climate change in the classroom at all levels to develop different investigative/inquiry-led projects with students.

In August 2019, the Anglophone sector organized a 2-day summer institute for Anglophone and Francophone educators in partnership with the national not-for-profit organization, Learning for a Sustainable Future (LSF), to explore the topic of climate change and effective teaching.

In January 2020, the two sectors of EECD participated with more than 45 partners from the Atlantic region to discuss the results of LSF's national climate change and education survey. The Atlantic Knowledge Mobilization Session raised awareness about the opportunities related to climate change in the Atlantic region and identified strategies to enhance discussions about climate change in the classroom.

The Francophone sector has created a youth climate change consultation committee to share best practices that could potentially be utilized in schools throughout the province. In October 2021, a climate change conference took place with hundreds of student leaders from the 22 francophone student councils across the province.

Since March 2021, both Anglophone and Francophone school districts have worked to empower students to take actions to address climate change through Climate Action Projects. Funding has been invested from the New Brunswick Climate Change Fund to support 54 climate change action projects in the Anglophone sector and over 55 projects *ÉducActions climatiques* in the Francophone sector. These projects aim to reduce the carbon footprint of schools and learners and focus on topics such as transportation, energy, waste, ecosystem protection and restoration.

In conjunction with the climate action projects, New Brunswick Climate Change Fund investments have been allocated to Anglophone districts and educators to provide professional development and help integrate climate change education through curated climate literacy resources, professional learning and data resources such as Energy Star Portfolio Manager, which is being used in the classroom by students to understand the impact of the energy consumption. A Climate Education Framework is currently in the draft stage of development, which will support the integration of climate change education across the curriculum.

An Anglophone and Francophone curriculum support teacher was assigned to focus on climate action education and the implementation of integrating climate change into the education system. Collaboratively, they support a network of educators spanning the whole province.

Professional development sessions were offered to community development officers (CDAs) from all schools in the three francophone districts. This training focused on climate change and the application process for *ÉducActions Climatiques* projects. In February 2022, a selection of professional development courses was presented to teachers. As a result, more than 150 teachers participated in workshops or training, and more than 1,200 resources will be distributed to schools across the province.

The provincial government continues to support and guide The Gaia Project creating resources and activities for teachers grades K-5. The newly hired curriculum support teachers have allowed this partnership to continue along with the development of a number of new partnerships with over a dozen bilingual environmental organizations, provincial departments, and experts from across the province.

In 2021-2022, Anglophone and Francophone educators and learners participated in over 100 climate action and capacity building projects throughout all subject areas and grounded in climate science.

The momentum from curriculum support teachers' activities is anticipated to continue into 2022-2023, as the shift to climate action in New Brunswick requires ongoing education.

Capacity Building

10 *Support and strategically invest in research at New Brunswick universities and colleges.*

Status: Complete Lead: Post-Secondary Education, Training and Labour

The provincial government continues to fund applied research at publicly funded post-secondary institutions and research institutes through third parties, such as the New Brunswick Innovation Foundation (NBIF). Beginning in 2019, the NBIF piloted a Social Innovation Research Fund. The fund helped support projects aimed at addressing complex environmental issues that impact the province. This work is directly linked to action 105.

Additionally, the provincial government provides funding for climate change research through the Environmental Trust Fund.

11 *Invest in training of workers, particularly in the trades, to create a new workforce oriented to energy efficiency, energy management and non-emitting energy.*

Status: Complete Lead: Post-Secondary Education, Training and Labour

The provincial government's Responsiveness Fund has been used by the New Brunswick Community College (NBCC) and the Collège Communautaire du Nouveau-Brunswick (CCNB) to help fund training in response to the pressing labour market needs of individuals and industry. NBCC received funding in 2015-2016 to fund the Electric Vehicle Education Project and in 2018-2019 to fund the Solar Panel Installation project. In addition, a Responsiveness Fund was initiated in 2021-2022 for public universities.

CCNB incorporated changes in the classroom intended to reduce the energy footprint of its programs, such as the use of simulators in trucking and heavy equipment operation classes.

The curricula of programs such as building engineering technology and trucking have been updated to include the use of smart home technologies to regulate HVAC and lighting and targets for eco-friendly driving techniques that contribute to fuel efficiency. CCNB also offers courses that focus on environmentally friendly techniques through several of its programs, including: a course on the control of substances harmful to ozone (regulation and handling of refrigerants) that leads to a certification; a course on geothermal systems and heat pumps; and a LEED (Leadership in Energy and Environmental Design) certificate course on green building as part of the foreman training program.

NBCC incorporated energy efficient building methods into the curriculum of their carpentry program and their carpentry apprenticeship training. NBCC also offers an Energy Systems Technologists program focusing on renewable resources. Students learn to analyze energy consumption, optimize efficiency, and reduce costs and damages.

In 2019-2020, the Environmental Trust Fund supported a Net Zero-Ready Home project led by NBCC. The project will engage students to create a net-zero-ready smart home as an educational and promotional demonstration platform.

12 *Strengthen linkages between government, researchers, NGOs, local communities and First Nations, to create partnerships and increase local capacity.*

Status: Complete **Lead: Environment and Local Government**

The provincial government actively facilitated linkages between government, researchers, NGOs, local communities, and First Nations, to create partnerships and increase local capacity to adapt to the impacts of climate change. The Climate Change Secretariat (the Secretariat) has worked closely with researchers to develop tools, data, and guidance that are used across several sectors to build climate resilience

Over the last five years, the Secretariat prioritized working with communities and First Nations through multiple adaptation planning initiatives. Development of climate change vulnerability assessments and adaptation plans were led by NGO's throughout the province.

This work has built local capacity by informing the public and various sectors on topics such as flooding, sea-level rise, adapting our natural resources to future conditions, emergency preparedness, and using nature-based solutions to protect communities from the impacts of climate change.

Carbon-neutral government

13 *Be carbon-neutral in its operations, facilities and vehicles by 2030.*

Status: Not Complete **Lead: Transportation and Infrastructure**

A preliminary study was completed in March 2020 that explores the topic of carbon-neutral government.

Given the importance of reducing GHG emissions in the province, the provincial government has shown leadership through several GHG reduction actions:

Over 800 publicly owned buildings have been entered into the energy management system ENERGY STAR® Portfolio Manager®, including schools, healthcare facilities, offices and garages.

- Since the beginning of this Action Plan, provincial government investments from its energy efficiency programs and the New Brunswick Climate Change Fund have allowed for deep energy retrofits and contributed to a GHG reduction of over 43,000 tonnes.
- Where possible, fuel conversions are being undertaken in favour of low-carbon fuels. Over the past five years, 28 sites have been converted to natural gas, propane, or biomass.
- The provincial government continues to take action to reduce GHG emissions from its government fleet. Two electric school buses were added in 2017–2018, and 11 plug-in hybrid electric vehicles were added to the general fleet in 2018–2019. In 2019–2020, government procured 16 propane school buses and 74 gasoline buses; both sources of fuel are more environmentally friendly than diesel. GNB's executive fleet includes 21 hybrids and two electric vehicles.

14 *Set up a GHG Offset program to facilitate achievement of its carbon-neutral goal.*

Status: Not Complete **Lead: Environment and Local Government**

The provincial government completed an initial study that evaluated all forms of offsets, including compliance and voluntary offsets.

15 *Encourage municipal and other public institutions to participate and make similar commitments as the provincial government.*

Status: Not Complete Lead: Environment and Local Government

Over the last five years, work has been focused on exploring greenhouse gas reduction opportunities in the provincial government. Engagement with municipal and other public institutions will occur through the development of community and institutional GHG reduction plans.

Provincial buildings GHG emissions

16 *Strengthen its Green Building Policy to include higher performance standards regarding energy, the environment and health for design and construction of new government-owned and -funded buildings. This should serve as an example for other levels of government and the private sector.*

Status: Not Complete Lead: Transportation and Infrastructure

The provincial government is pro-active and remains up to date with environmental targets with green building standards and rating systems.

The Green Building Policy will continue to evolve as new building and energy codes are adopted by the provincial government.

This is a continuous, on-going process, where Department of Transportation and Infrastructure advises client departments with recommendations for increased performance standards balanced with economically viability within their project budgets.

This Policy is on track to foster and champion higher performance sustainable principles and standards for provincial buildings as the green industry continues to grow and evolve.

17 *Improve the energy performance of all existing government-owned buildings, including offices, schools, hospitals and affordable housing.*

Status: Not Complete Lead: Transportation and Infrastructure

The provincial government has continued implementing energy efficiency measures under the Department of Transportation and Infrastructure's (DTI) Energy Retrofit Program. Working closely with Service New Brunswick's Energy Managers, and client departments, operational optimization and other opportunities are identified and are a result of collaboration.

Since April 2017, provincial government investments from its energy efficiency programs (Energy Retrofit Program, Renewable Energy, and Education and Early Childhood development's Lighting Program) and the New Brunswick Climate Change Fund have contributed to a GHG reduction of over 43,000 tonnes. Examples of measures include controls systems upgrades to implement scheduling and demand limiting strategies, demand-controlled ventilation, energy recovery ventilators, biomass boiler installations and lighting retrofits.

Improving the energy performance of publicly funded buildings is very important and an ongoing effort. All existing government-owned buildings were not addressed over the past five years due to the limited timeframe and significant resources required to enhance building performance. DTI will continue to identify required resources and opportunities necessary for improving the energy performance of all government buildings.

Service New Brunswick has developed a dashboard, currently in its testing phase, to present Portfolio Manager data using Microsoft Power BI software. This will provide up-to-date feedback on the provincial government's ongoing progress toward this action item.

18 *In urban areas, and where possible elsewhere, preferentially locate public buildings in areas accessible by public transit, walking and cycling.*

Status: Complete Lead: Transportation and Infrastructure

Working with Client Departments and Municipalities; the provincial government includes consideration for: the proximity of public transit, walking, and cycling routes when determining the location of new public buildings.

Two new schools were tendered for construction in early 2020 and will be located near trail systems. The new Hanwell K-8 School is currently under construction and will be connected to the Hanwell Rural Community Nature Park Trail. The construction of the new Moncton 6–8 School has not yet begun but is also located near a bus transit route.

19 *Phase out the use of fuel oil for heating publicly funded buildings and replace it with low-carbon fuels such as wood pellets, natural gas, biomass and solar energy.*

Status: Not Complete Lead: Transportation and Infrastructure

Through the lifecycle evaluation process, new buildings are being constructed using natural gas or wood pellet heating systems rather than fuel oil. Where possible, fuel conversions are being undertaken in favour of low-carbon fuels at the time of equipment renewal or installing stand-alone heating plants to offset reliance on fuel oil. Over the past five years, 28 sites have been converted to natural gas, propane, or biomass.

The Upper River Valley Hospital biomass boiler plant was brought online in December 2021. This installation is expected to reduce the hospital's oil consumption by over 440,000 litres annually, resulting in a GHG reduction of 1,220 tonnes.

Phasing out fuel oil for heating publicly funded buildings is very important and an ongoing effort. All existing government-owned buildings that use fuel oil for heating were not addressed over the past five years due to the limited timeframe and significant resources required to convert to low-carbon fuels.

The provincial government will continue working to limit the use of fuel oil for heating in publicly funded buildings.

20 *Require energy performance identification (benchmarking and labelling) for all publicly funded new construction and major building renovations.*

Status: Not Complete Lead: Transportation and Infrastructure

The provincial government has implemented and will maintain a government-wide energy management and reporting system for existing buildings (Action 113) using the ENERGY STAR® Portfolio Manager®.

All new construction, upon completion, will continue to be entered into ENERGY STAR® Portfolio Manager®. Buildings that have completed major renovations will have relevant building details updated in the system.

New construction and major building renovations undergo energy modelling as part of the design process, allowing a benchmark for the building's performance to be established where historical data is unavailable. Energy consumption data is reviewed to determine if new buildings are being operated according to design or identify where additional improvements may be possible. The energy models contribute directly to the green rating system chosen for a given project (LEED or Green Globes, for example). SNB will continue to sustain the ENERGY STAR® Portfolio Manager®.

The provincial government focused its efforts on the benchmarking component of this action. The labelling component was not completed within the five years of this Action Plan.

21 *Increase 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.*

Status: Complete Lead: Transportation and Infrastructure

The provincial government will adhere to the *Wood in the Construction of Public Buildings Policy* which requires the use of wood in the construction of new structures when it is a cost-competitive and practical building material.

Work is underway to identify and evaluate the benefits of wood as a construction material in transportation structures. Wood has been used to frame modular classrooms, nursing homes, the timber-framed lodge at Mount Carleton, and the replacement of the Vaughan Creek Covered Bridge in St. Martins. The bridge is being replaced with a new modern wooden structure. Using wood in the construction of bridges will reduce the requirement for concrete, which requires considerable energy to produce.

Provincial transportation GHG emissions

22 Prepare a green transportation policy that will include measures to: a. develop a government electric vehicle program relating to fleet vehicles and recharging infrastructure; b. implement new fleet procurement, consistent with the Green Procurement Policy, and management systems including alternative fuel vehicles that improve fuel efficiency and lower GHG emissions; and c. promote a culture of minimized travel by public servants, through measures such as enhanced teleconference capabilities in government offices, alternative work arrangements, a strengthened employee travel policy and encouragement of alternative methods of commuting to work.

Status: Not Complete Lead: Transportation and Infrastructure

In accordance with the provincial government's *Green Transportation Policy*, the Vehicle Management Agency (VMA), within the Department of Transportation and Infrastructure (DTI), researches the most fuel-efficient vehicles and the most environmentally responsible driving practices. The provincial government requires that its executive vehicles are in the top 10 per cent of the most fuel-efficient vehicles in their class.

The provincial government continues to take action to reduce GHG emissions from its government fleet. VMA works with client departments to monitor idling, speeding, rapid acceleration, and aggressive deceleration of the vehicles assigned to their fleets, including school buses, snowplows, and light-duty vehicles.

Work on the Green Fleet Strategy is ongoing. Through the New Brunswick Climate Change Fund, the provincial government has invested in a Fleet Management System.

VMA will hire a Green Fleet Manager in the spring/summer of 2022 to collaborate with all client departments, provide advice and support for the transformation, operation, and maintenance of the greening of government's fleet.

The provincial government continues to take action to reduce GHG emissions from transportation. GNB's fleet consists of many vehicles such as school buses, snowplows, light-duty vehicles, etc. GNB works to monitor idling, speeding, rapid acceleration, and aggressive deceleration of the vehicles assigned to their fleets to improve vehicle efficiency.

In 2020, Service New Brunswick completed a fleet assessment. Most of the recommended upgrades to make the fleet more fuel efficient were completed by March 2022.

Two electric school buses were added in 2017–2018, and 11 plug-in hybrid electric vehicles were added to the general fleet in 2018–2019. In 2019–2020, government procured 16 propane school buses and 74 gasoline buses; both sources of fuel are more environmentally friendly than diesel. GNB's executive fleet includes 21 hybrids and two electric vehicles.

Over the last two years, teleconferencing capabilities for government employees have been strengthened in government offices, and government has developed a GNB Remote Work Policy.

Low-carbon procurement

23 Prepare a green procurement policy, with a phased implementation strategy, to procure products with the lowest carbon footprint. The policy should also minimize the impact on the environment and reduce climate-related risks while still meeting the government's cost and quality requirements and respecting trade agreements.

Status: Complete Lead: Service New Brunswick

In December 2021, the provincial government released a Green Procurement Policy and toolkit for GNB.

Where possible, the provincial government is committed to:

- Considering environmental impacts in the procurement process to fulfill environmental commitments while maintaining fiscal responsibility.
- Meaningfully integrating appropriate environmental requirements into solicitation documents.
- Ensuring environmental impact is appropriately assessed as part of solicitation evaluations.

Inter-jurisdictional partnerships and collaboration

24 *Continue to engage actively with neighbouring jurisdictions through the NEG-ECP and Gulf of Maine Council in climate change plans and initiatives.*

Status: Complete Lead: Environment and Local Government

New Brunswick continues to be an active participant in the climate change work of the New England Governors and Eastern Canadian Premiers (NEG-ECP). A Regional Climate Change Action Plan was released in 2017.

In June 2018, the Department of Environment & Local Government, on behalf of the provincial government, chaired the Council and its Working Group at its annual general meeting in Gloucester, Massachusetts. Subsequently, for the remainder of 2018 and winter of 2019, staff assisted with planning two symposiums held in St. Andrews, New Brunswick and Portland, Maine.

The provincial government co-chaired the Climate Adaptation Working Group with Maine under the NEG-ECP. In 2021, the Working Group produced the Report *“Regional Coordination for Resiliency and Adaptation Planning”*, which outlines how states, provinces, and the Adaptation Working Group, can action climate change adaptation by:

- Maintaining a Compendium of Best Practices for adaptation;
- Collaborating on projects to increase knowledge sharing across the region, providing leaders with access to successful models to expedite implementing best practices; and,
- Coordinating climate change mitigation and adaptation across NEG/ECP Committees and Working Groups for cross-disciplinary responses.

In 2021, the Department of Environment & Local Government, on behalf of the provincial government, attended several meetings and initiatives through the Gulf of Maine Council.

New Brunswick will continue to engage actively with neighbouring jurisdictions on climate change through the NEG-ECP and the Gulf of Maine Council.

25 *Engage with municipalities and regional service commissions to encourage actions at the community planning and local development stages that include strategies for climate change mitigation and adaptation, smart growth and brownfield and infill development.*

Status: Complete Lead: Environment and Local Government

Local Governments and regional service commissions (RSCs) have been incorporating, where possible, climate change adaptation and mitigation measures into local land use plans. Some local governments currently include smart growth, infill development and brownfield development in their practices.

The provincial government encourages the inclusion of climate change in land use plans. In 2021, the Department of Environment and Local Government (ELG) reviewed 145 land use plans and found that 27 per cent of the plans included climate change adaptation policies. Until recently, climate change was not required to be included in land use plans.

In December 2021, the *Community Planning Act* was changed to require all land use plans to include policies related to climate change adaptation and mitigation. To help facilitate climate change policies in land use plans, ELG has developed a list of potential climate change policy statements. The department ensured that climate change data and information were provided to RSCs and local governments by sharing reports, data, and information.

In 2021, Climate Change Secretariat staff presented the most recent climate data to land use planners at various conferences and meetings.

26 *Collaborate closely with the federal government in priority areas such as climate change monitoring and research, GHG regulations, access to export markets for New Brunswick's low-carbon products and technologies, and other areas of shared concern.*

Status: Complete Lead: Environment and Local Government

The provincial government continues to participate in Federal-Provincial-Territorial working groups, such as those supporting the Pan-Canadian Framework on Clean Growth and Climate Change, to ensure that New Brunswick's interests are represented and to learn from the experiences of jurisdictions across Canada.

In 2017, the federal government established the Coordinating Committee of Experts under the Pan-Canadian Framework, which includes federal, provincial, and territorial representatives. New Brunswick is represented on the Committee by the Climate Change Secretariat.

In November 2019, New Brunswick hosted Natural Resource Canada's (NRCAN) Adaptation Plenary and contributed to NRCAN's report "[Canada in a Changing Climate: Regional Perspectives](#)" for the Atlantic Provinces.

27 *Continue to collaborate closely with other Atlantic provinces under the Atlantic Climate Adaptation Solutions Association (ACASA) to share information and leverage funding opportunities related to climate change adaptation.*

Status: Complete Lead: Environment and Local Government

The former Atlantic Climate Adaptation Solutions Association was terminated in 2021. Instead, common initiatives aimed at building collective resilience to climate change are now being pursued through CLIMAtlantic. Each of the Atlantic provinces and the Federal Government is represented on the Board of Directors of the newly created organization.

New Brunswick has assigned a Climate Change Adaptation Specialist to CLIMAtlantic, who will be sharing climate information, engaging with stakeholders and the public, and delivering climate change adaptation services to New Brunswickers to achieve climate literacy, best inform decision-making at all levels, and build the province's collective resilience to the impacts of climate change.

28 *Continue to participate and maintain relationships with national adaptation working groups such as Natural Resources Canada's Adaptation Platform.*

Status: Complete Lead: Environment and Local Government

The provincial government has played an important role in Natural Resources Canada's (NRCAN) Adaptation Platform and other Federal-Provincial-Territorial Committees and Working Groups. New Brunswick contributes as a member of the Climate Change Impacts and Adaptation Policy Committee, the National Coastal Management Working Group and the National Climate Change Adaptation Knowledge Committee.

In November 2019, the provincial government hosted the fall session of NRCAN's Adaptation Plenary, the national forum that brings together key groups across Canada to collaborate on climate change adaptation priorities. The session allowed New Brunswick to profile its adaptation initiatives which informed participants of the programs and projects across the province designed to increase local capacity that advances climate adaptation planning while building the province's collective resilience to the impacts of climate change.

Participation in a national level working groups and committees allows the provincial government to contribute to and learn from the latest climate science and best adaptation practices and guide local climate change practitioners to funding programs and training opportunities.

29 *Continue to work collaboratively with industry and professional organizations to share information and best practices and facilitate the dissemination of climate change awareness programs.*

Status: Complete Lead: Environment and Local Government

Since 2019, the provincial government has partnered with the Federal government to deliver three projects under Natural Resource Canada's 'Building Regional Adaptation Capacity and Expertise (BRACE)' program. The projects were completed in March 2022 and included:

- 1) Climate change educational material for engineers and training on Climate Change Risk Management for Engineers.
- 2) The establishment of the [Natural and Nature-Based Climate Change Adaptation Community of Practice \(CoP\)](#). The CoP was created for NGO's, engineers, municipalities, landowners, and the public. It promotes the use of natural assets, ecosystems, and nature-based solutions to reduce climate change impacts while maintaining biodiversity and ecological resilience.
- 3) Training forestry professionals to assist woodlot owners in developing climate-adjusted forest management plans through Climate Adaptive Silviculture Prescription Tool and companion documents, several conferences and webinars, and informational videos.

Professional engineers, adaptation practitioners, such as NGO's, municipalities, forestry professionals and woodlot owners are now well versed in incorporating climate change considerations into their field of expertise, business, mandate, and everyday decision-making. This level of awareness will contribute significantly to increasing New Brunswick's collective resilience to the impacts of climate change and is a successful outcome of New Brunswick's participation in national adaptation initiatives.

COLLABORATION WITH FIRST NATION COMMUNITIES

30 *Continue to engage with First Nations to support implementation of this action plan, including: a. developing working groups with First Nations representatives to address priority actions; b. including First Nations representation on a climate change advisory committee; c. sharing climate impact information and tools to help identify and address vulnerabilities; d. supporting capacity building opportunities to grow the strengths, skills, knowledge, competencies, and abilities of First Nations communities to respond to climate change; and e. supporting programs to improve the energy efficiency of homes and businesses.*

Status: Not Complete Lead: Environment and Local Government

The provincial government continues an ongoing dialogue with First Nations representatives around climate change issues and developing the capacity to address priority action items related to climate change. This includes engaging with representatives on climate-related issues, including climate data and information sharing, flood hazard mapping, cyanobacteria (blue-green algae), environmental impact assessments, watershed management etc. Engagement will be ongoing through the development and renewal of the climate change action plan.

GHG EMISSIONS REDUCTIONS

GHG emission reduction targets

31 *Establish specific GHG emission targets for 2020, 2030 and 2050 that reflect a total output of: a. 14.8Mt by 2020; b. 10.7Mt by 2030; and 5Mt by 2050.*

Status: Complete Lead: Environment and Local Government

GHG emission targets were established as part of the Climate Change Act, which was proclaimed in 2018. New Brunswick has met its 2020 target and is on track to meet its 2030 target.

Cross-sector action – A price on carbon

32 *Implement a made-in-New Brunswick carbon pricing mechanism that addresses the requirements of the federal government for implementing a price on carbon emissions by 2018 and at the same time recognizes New Brunswick's unique economic and social circumstances. The provincial government will take into consideration impacts on low-income families, trade-exposed and energy-intensive industries, and consumers and businesses, when developing the specific mechanisms and implementation details, including how to reinvest proceeds. Any carbon pricing policy will strive to maintain competitiveness and minimize carbon leakage (i.e., investments moving to other jurisdictions). Proceeds from carbon emissions pricing will be directed to a dedicated climate change fund.*

Status: Complete Lead: Environment and Local Government

Effective April 1, 2020, the provincial government introduced a federally compliant provincial carbon tax at \$30/tonne on 22 different fuels. On April 1, 2021, the carbon tax was increased to \$40/tonne. Incremental revenue from the carbon tax was directed toward climate change initiatives in 2020-2021 and to the Climate Change Fund in 2021-2022.

For large emitters, the New Brunswick Output-Based Pricing System was approved by the federal government in 2020 and came into effect on January 1, 2021. Under the system, large industrial emitters are required to reduce their GHG emissions intensity by 10 per cent in 2030 and electricity generators are required to meet performance standards that have been designed to reduce GHG emissions while minimizing rate impacts on New Brunswickers. Any revenue generated under the Output-Based Pricing System will be directed to the New Brunswick Climate Change Fund.

Clean energy and efficiency programs

33 *Mandate energy efficiency delivery agents to provide energy efficiency with:*

- a. *clear performance-based targets for program-delivery services, in line with potential for efficiency gains in New Brunswick and performance levels in leading jurisdictions; i.e., in the range of 1.5 per cent to 1.75 per cent of sales per year;*
- b. *sustained funding, including financial incentives and financing mechanisms, to support enhanced progressive long-term programs;*
- c. *expanded capacity and programs to support low-income New Brunswickers;*
- d. *active promotion and recruitment of participants to enhance program uptake;*
- e. *training for building contractors through partnerships with the New Brunswick Home Builders' Association and other stakeholders;*
- f. *coverage of all sectors (i.e., transportation, industry, commercial, residential) and all fuels;*
- g. *the scope to include distributed clean energy options such as solar, wind and bio-energy;*
- h. *performance auditing and reporting periodically; and*
- i. *legislative and regulatory authority to enable energy efficiency delivery agents to meet the above conditions.*

Status: Complete Lead: Natural Resources and Energy Development

The estimated energy savings from April 2017 – March 31, 2021, is 263 GWh/year from all funding sources since April 2017. This results in an approximate reduction of 148,000 tonnes of GHG emissions per year, equivalent to taking 32,000 cars off the road for one year.

- a. In January 2018, NB Power hired a consultant to do a comprehensive Demand Side Management (DSM) potential study to identify economic energy efficiency options throughout the province for all building sectors. The provincial government is reviewing the findings, and this study will help guide the development of efficiency targets and budget requirements for long-term planning and delivery of energy efficiency programs for all fuel types and all sectors. Legislative amendments introduced in 2022 will allow targets and funding to be set in regulation.

b. NB Power continues to be committed to cost-effective DSM programming with annual budgets approved by the regulator. In addition, the federal government's Low Carbon Economy Fund is providing \$51 million in funding between 2017 to 2024 that extends NB Power's energy efficiency programs beyond electricity to all fuel types, including oil, natural gas, and propane. In 2020-2021 and 2021-2022, NB Power has also received money from the New Brunswick Climate Fund. The total annual budget from all sources has increased from \$13.6 million in 2017-2018 to a projected \$34.3 million in 2021-2022.

c. Since 2013, the provincial government has funded the Low-Income Energy Savings program with \$2 million per year from the Department of Social Development. Additional funding from the New Brunswick Climate Change Fund has allowed NB Power to remove the waiting list and more than double the annual completions. The total homes completed since 2017 are 2,100.

A recent Climate Change Fund investment allowed for the purchase and distribution of 10,000 free Energy Efficiency Kits to Not for Profit Organizations and First Nations Communities. The Climate Change Fund also invested in a pilot to fund Energy Efficient Retrofits in Social Development-owned housing.

The *Electricity Act* was also amended in late 2021 to allow NB Power to fund low-income energy efficiency programs.

d. To raise awareness and increase overall uptake in programs, NB Power developed modern, comprehensive multi-channel marketing campaigns for all programs that effectively reached customers through social media, digital, video, TV, print and more. The neutral standalone [SaveenergyNB.ca](https://www.saveenergyNB.ca) website was created and is being expanded to be the one-stop-shop for efficiency in NB.

Since 2017, over 30,000 homeowners have entered the residential programs, over 2,200 businesses have registered for commercial programs, and industrial companies have enrolled in 225 projects.

e. Since April 2017, NB Power has delivered hundreds of hours of training across 30 workshops and training sessions for builders and contractors in the residential space, as well as 26 training and capacity building workshops for commercial, municipal and industrial customers and service organizations. This is in addition to informal one-on-one capacity building carried out with customers on-site.

f. There are currently 12 programs being offered to serve all sectors: The Low-Income Energy Savings Program, the Community Outreach Program and Social Development Housing Pilot, all serving the Low-Income Sector. The Total Home Energy Savings Program and the New Home Construction Program both help New Brunswick homeowners make their homes more energy efficient. Serving the Business sector NB Power has the new Business Rebate Program, the Commercial Building Retrofit program, Energy Star Portfolio Manager Web services, the industrial program including a new free Energy Walkthrough service, the Peak Rebate Demand Response program. and NB Power are in the pilot phase of a Commercial New Construction Program. All of the programs include incentives for all fuels except the New Construction Programs, which are not eligible for the federal Low Carbon Economy Funds.

g. The Total Home Energy Savings Program, Commercial Building Retrofit Program and the Industrial Energy Savings Program all have incentives available for clean or renewable energy. Below are the total numbers of clean energy projects to date:

- Total Home Energy Savings Program has had 16 solar installations, 50 ground source heat pump installations, 71 biomass stove retrofits, and 1 solar hot water.
- Commercial Building Retrofit Program has had 42 ground source heat pumps, 1 ground source heat pump water heater, 3 photovoltaic arrays, 6 solar panels and 1 conversion to Biomass heating.
- Industrial Energy Savings Program has had 1 Solar study confirmed

h. NB Power's efficiency programs undergo third-party evaluation on a regular basis. In addition, NB Power provides updates to the Department of Natural Resources and Energy Development on results and program activities. Reporting requirements are being included in the 2022-2023 Mandate letter for NB Power and in recent legislative amendments introduced in the Legislature.

i. The Department of Natural Resources and Energy Development introduced legislative amendments to provide the authority to create regulations that will set annual electricity efficiency targets for NB Power and establish a fund to provide long-term funding for non-electric programs. The regulatory authority will also establish annual reporting requirements on all sectors.

34 *Increase spending on energy efficiency in the capital budget by 50%.*

Status: Not Complete **Lead: Transportation and Infrastructure**

This action is linked to Actions 17 and 19. The budget for Energy Retrofit and Renewable Energy programs increased 52 per cent from 2017-2018 to 2018-2019. Although the provincial government reduced its capital budget in 2019-2020, energy efficiency projects with the largest impacts remained a priority.

Department of Transportation and Infrastructure's (DTI) budget for 2020-2021 was \$5.25 million, plus \$2 million from the Federal Climate Action Incentive. The budget for 2021-2022 was \$5.25 million, plus a contribution of \$3.8 million from the New Brunswick Climate Change Fund. Funding was allocated to DTI's Energy Program, totalling \$2 million, and \$1.8 million was allocated for LED lighting upgrades for public buildings.

Department of Transportation and Infrastructure's (DTI) budget for 2020-2021 was \$5.25 million, plus \$2 million from the Federal Climate Action Incentive. The budget for 2021-2022 was \$5.25 million, plus a contribution of \$3.8 million from the New Brunswick Climate Change Fund. Funding was allocated to DTI's Energy Program, totalling \$2 million, and \$1.8 million was allocated for LED lighting upgrades for public buildings.

35 *If viable, use the Property-Assessed Clean Energy (PACE) Program in New Brunswick as a means of financing for private property owners to implement energy efficiency and renewable energy improvements.*

Status: Not Complete **Lead: Environment and Local Government**

A preliminary examination of the Property-Assessed Clean Energy (PACE) Program has been initiated to examine its potential application to New Brunswick. A broader examination of alternate financial instruments to provide long-term lending and repayment that remove existing financing barriers to program participants is expected.

36 *Urge the federal government to:*

- a. *improve energy efficiency through revisions to the building standards for First Nations housing; and*
- b. *agree to add energy efficiency as a component of social housing agreements.*

Status: Complete **Lead: Intergovernmental Affairs**

a. On-reserve First Nations housing does not fall under the provincial government's jurisdiction. However, for off-reserve First Nations housing, the building standards are the same as New Brunswick social housing standards: The National Building Code and the provincial Green Building Policy.

b. Energy efficiency is included as a component of social housing agreements with the Canada Mortgage and Housing Corporation (CMHC).

Under the CMHC-New Brunswick Bilateral Agreement, the province has committed to investing in energy efficient products and materials that meet and exceed the National Building Code Energy Efficiency requirements as well as exceed the requirements of the Green Building policy of New Brunswick. Housing expansion efforts will strive to design and build new construction by achieving a minimum 25 percent decrease in the energy consumption and GHG emissions over the requirements of the 2015 National Building Code and past performances.

37 *Continue to encourage innovation such as smart grid technologies to facilitate additional efficiency gains in electricity service in the mid to long-term.*

Status: Complete **Lead: Natural Resources and Energy Development**

The provincial government supports innovation in clean energy and energy efficiency and is currently exploring the development of Smart Grid and other innovative technologies. Advanced Metering Infrastructure (AMI) is an infrastructure component needed to enable significant aspects of the Smart Grid. NB Power's AMI proposal was presented to the Energy and Utilities Board in the winter of 2020 and subsequently approved. The provincial

government continues to monitor innovative pilots and projects initiated by New Brunswick electric utilities in partnership with researchers and tech companies. For example, these include pilots on smart thermostats, smart water heaters and a Conservation Voltage Reduction research and demonstration project.

The Smart Energy Community Project selected 442 homes to test different technologies. 90 per cent of eligible homes have installed smart thermostats and smart water devices. NB Power has completed assessments for residential solar, batteries and Stash storage heat pumps. Installation is planned to begin in the Spring of 2022.

38 *Within a time frame that respects New Brunswick's circumstances and takes into account training in the building industry to ensure adequate compliance, adopt the latest National Energy Code of Canada for Buildings and National Building Code.*

Status: Complete Lead: Justice and Public Safety

The *Building Code Administration Act* was introduced on March 17, 2020.

The 2015 National Building Code of Canada and the 2011 National Energy Code for Buildings were adopted through the Act on February 1, 2021.

39 *If viable, require energy labelling for all new building construction, both residential and commercial.*

Status: Not Complete Lead: Justice and Public Safety

The provincial government has not developed a mechanism to require energy labelling for new building construction.

Renewable and low-emission energy

40 *Work with the federal government, our neighbouring provinces, local stakeholders and the electric utility toward eliminating coal-fueled electricity generation as quickly as possible. If adequate support can be found to minimize impacts on energy costs and the local economy, eliminate coal by 2030. Alternatively, phase out coal by the status quo date of 2040 with interim emission reductions aligned with new federal regulations.*

Status: Complete Lead: Environment and Local Government

As per federal government requirements, New Brunswick has committed to phasing out coal-fired electricity generation by 2030.

41 *GHG emissions from electricity generation in the province will be regulated in alignment with provincial emissions targets.*

Status: Complete Lead: Environment and Local Government

In June 2019, the provincial government released a policy for the regulation of large emitters, "*Holding Large Emitters Accountable: New Brunswick's Output-Based Pricing System*," for public consultation. Following public consultation, the province submitted its policy approach to the federal government for approval. The New Brunswick Output-Based Pricing System was approved by the federal government in 2020 and came into effect on January 1, 2021. Under the system, large industrial emitters are required to reduce their GHG emissions intensity by 10 per cent in 2030 and electricity generators are required to meet performance standards that have been designed to reduce GHG emissions while minimizing rate impacts on New Brunswickers.

42 *Support the uptake of increased renewables for both electricity generation and residential/business heating in New Brunswick, through financial incentives, policy and legislation.*

Status: Complete **Lead: Natural Resources and Energy Development**

NB Power has met and is currently exceeding the requirement to serve 40 per cent of in-province electricity sales from renewable sources. The requirement is being met through in-province supply and demand-side resources, and renewable imports. In-province resources include:

- large and small-scale wind projects,
- hydro generation,
- distribution connected hydro, wind, biogas and solar,
- net metering projects, and
- energy efficiency programs.

The requirement has resulted in the execution of power purchase agreements for renewable energy with a total installed capacity of over 700 Megawatts. Between 2015-2016 to 2020-2021 (5 years), net-metering generation increased from 0.1 Gigawatt-hours (GWh) to 4 GWh, and Embedded generation increased from 21 GWh to 49 GWh.

In 2020-21 about 6.6 Terawatt-hours of renewably sourced electricity was used to serve in-province electricity needs (about 51 per cent).

43 *Investigate and remove existing barriers to achieving greater implementation of renewable power generation, distributed energy generation, and net metering.*

Status: Not Complete **Lead: Natural Resources and Energy Development**

Between 2015-16 to 2020-21, net-metering generation increased from 0.1 GWh to 4 GWh, and Embedded generation increased from 21 GWh to 49 GWh and two First Nation community owned wind energy projects were constructed and operationalized as part of the LORESS program.

This action is effectively ongoing as the electricity sector evolves. The provincial government has been working closely with NB Power to re-open the embedded generation program in a way that doesn't pose upwards pressure on rates.

The provincial government has been exploring ways to remove barriers to the uptake of the programs in partnership with the federal government.

44 *Review the outcomes of the small-scale community renewable energy program upon completion and expand or modify the program accordingly.*

Status: Complete **Lead: Natural Resources and Energy Development**

In 2015, the Locally Owned Renewable Energy Small Scale (LORESS) program was created with a goal to develop 80 Megawatts (MW) of new, locally owned, renewable energy projects by the end of 2020.

Two First Nations projects became fully operational in 2020-2021 and provided 103 GWh or almost 1 per cent of the renewable electricity provided to New Brunswickers. The Wocawson Energy LP project in Albert County is a 20 MW wind farm owned by the Tobique First Nation and Natural Forces Inc. The Wisokolamson Energy LP project is also located in Albert County and is an 18 MW wind farm owned by Woodstock First Nation in partnership with SWEB Development LP.

In 2021, a consultant was hired by the Department of Natural Resources and Energy Development to review the outcomes of the LORESS program and provide recommendations.

45 *Work with the federal government to address the barriers to using registered retirement savings plan investments to support community economic development corporations with their renewable energy projects.*

Status: Complete Lead: Finance and Treasury Board

Since 2017 the provincial government's Small Business Investor Tax Credit has been available to individuals investing in eligible Community Economic Development Corporations (CEDC) tax credit of 50 per cent, or up to \$125,000, on an investment of up to \$250,000. This is more generous than in neighbouring provinces. Investments in New Brunswick CEDCs may be RRSP eligible by having the CEDC work individually with CRA to obtain eligibility.

Reduced GHG emissions from transportation

46 *Work to have 2,500 electric vehicles on the road in New Brunswick by 2020 and 20,000 by 2030.*

Status: Not Complete Lead: Natural Resources and Energy Development

As of March 31, 2022, there are approximately 1,300 Battery Electric and Plug-In Hybrid Electric Vehicles registered in New Brunswick. This is a significant increase from the 470 electric vehicles (EVs) reported prior to March 2020. The increase of new EVs registered is a result of the provincial government's introduction of an EV rebate of up to \$5,000 in July 2021.

47 *Implement an electric vehicle strategy that specifies the required incentives, regulations, policies, programs and charging infrastructure to achieve the above-mentioned targets for electric vehicles.*

Status: Not Complete Lead: Natural Resources and Energy Development

Although a specific strategy has not been developed, a great deal of work has been done with Electric Vehicles (EV) in NB. An Electric Vehicle Advisory Group continues to be active and help guide the advancement of EVs in the province.

NB Power took advantage of Federal programs for public charging infrastructure and made New Brunswick the first fully interconnected province in Canada, with public chargers located no more than 63 kilometres apart along the Trans Canada Highway.

In July 2021, the provincial government announced an EV incentive with NB Power delivering the program. NB Power will also provide education and awareness about EVs and will work with automobile dealerships to ensure there is an adequate supply of EVs for consumers to take advantage of point of sale incentives.

48 *Work with industry, shippers and other stakeholders to identify opportunities and partnerships to facilitate multi-modal transportation (road, rail, marine and pipelines) aimed at improving efficiencies (e.g., logistics) and reducing GHG emissions.*

Status: Complete Lead: Transportation and Infrastructure

The provincial government will continue to work closely with Opportunities New Brunswick, New Brunswick Business Council, Atlantic Provinces Trucking Association, as well as marine ports and airports to improve the efficiency of the transportation network, which includes utilizing more eco-friendly modes of transportation.

As part of the ongoing efforts toward trade corridor development, the provincial government continues to work with transportation modal stakeholders (including transportation providers - marine ports, airports and railways, industry, shippers and other stakeholders) to identify opportunities and partnerships to further facilitate integrated multi-modal transportation aimed at improving efficiencies around the movement of goods and reducing GHG emissions.

49 *Work with freight trucking partners to improve the fuel efficiency of freight trucks by installing proven fuel-saving devices such as aerodynamic features and new engine technologies while addressing regulatory barriers to implementation; piloting the use of alternative fuels such as natural gas will also be considered.*

Status: Complete Lead: Natural Resources and Energy Development / Transportation and Infrastructure

In December 2021 NB Power became a SmartWay Affiliate which is a voluntary program that helps businesses move goods efficiently while keeping fuel costs and environmental impact at a minimum 2021. NB Power will work to incorporate Smart Way content into the new Save Energy NB website in 2022.

In the Fall of 2021, NB Power conducted commercial fleet electrification interviews with 15 organizations with various size car and truck fleets. This information will inform future program development.

Idle reduction technology, aerodynamic devices, and wide-base single tires (WBST) are now included in New Brunswick's *Vehicle Dimensions and Mass Regulation*. Special permits are not required to make use of these new technologies. Department of Transportation and Infrastructure amended the regulation under the *Motor Vehicle Act* to improve fuel efficiency and reduce GHG emissions. The amendments include a provision of a mass allowance for tractor trailers equipped with idle reduction technology; and provision of a dimensional allowance for aerodynamic devices installed at the rear of vehicles.

Since 2021 the provincial government has continued to participate in a Federal-Provincial-Territorial task force on heavy-duty vehicle (HDVs) retrofits. Their mandate is to look at the existing fleet of HDVs, explore options for converting fleets to different fuel sources, and look at equipment/technologies that can be installed after-market (i.e. retrofit) to reduce GHG emissions. The task force will help to better understand the fleet composition of the trucking sector, barriers to becoming more fuel-efficient, challenges in estimating the performance of fuel-saving technology, and existing policies, programs, and regulations to reduce GHGs from HDVs.

The provincial government engaged stakeholders, and a study was completed in 2018-2019 and determined it was not feasible to pilot the use of alternative fuels (e.g. natural gas).

The provincial government will continue to work with the federal government on the upcoming climate change initiatives and monitor the technological advancements in the alternative fueled long-haul trucking sector. The provincial government may re-assess the viability of a pilot if the conditions become favourable in the future.

50 *Collaborate with municipal and local governments to expand cleaner alternative transportation options such as electric vehicles, public transit, carpooling, ride-sharing, bicycling and walking.*

Status: Complete Lead: Environment and Local Government

As a response to the 2017 report "*From Surfaces to Services: An inclusive and sustainable transportation strategy for the Province of New Brunswick 2017-2037*" by the Rural and Urban Transportation Advisory Committee - NB Economic and Social Inclusion Corporation, the provincial government established a pilot project on public transportation in 2018. The project was carried out by a multi-departmental government project team and included students from UNB and the Executive Director of the Kent Regional Service Commission. The pilot project explored an approach to provide regional public transportation to the residents of the Kent Region. In 2019, the project team developed a draft transportation approach, which was transferred to the Kent Regional Service Commission to further explore the feasibility of the approach in the Kent region.

51 *Advance public transportation planning at the regional level to allow for route integration and improvements in access.*

Status: Complete Lead: Transportation and Infrastructure

Under Local Governance Reform, as of January 1, 2023, regional service commissions will be required to prepare an Integrated Regional Transportation Vision, Strategy & Plan for their region based on the displacement needs of the community. In turn, the Province is currently establishing an interdepartmental committee to ensure an integrated and strategic approach to transportation development.

Department of Transportation and Infrastructure was actively engaged on a Federal-Provincial-Territorial committee with Transport Canada that reviewed gaps, challenges, and long-term sustainability of intercity bus service at a national level.

Regulation of industry emissions

52 *Extend the reporting requirements to facilities that emit at least 10,000 tonnes of GHG emissions per year and management requirements to facilities that emit at least 25,000 tonnes of GHG emissions per year, by the end of 2017, respectively, and work with industry to ensure a smooth transition.*

Status: Complete Lead: Environment and Local Government

In 2017, the provincial government amended Operating Approvals for industrial facilities that emit at least 10,000 tonnes of GHG emissions per year, requiring that they report their GHG emissions to the Department of Environment and Local Government using the Federal Single Window Reporting web platform. As a result, information on GHG emissions from 7 additional industrial facilities is being collected and utilized in the province's GHG emissions inventory and projections. The provincial government also amended the Air Quality Approvals to Operate for the applicable facilities to extend the GHG management requirements for those facilities that emit at least 25,000 tonnes of GHGs per year. The Approval amendments were completed in 2019.

53 *Set emissions limits on the largest industrial emitters in consultation with relevant stakeholders, the federal government and other provinces to ensure that the measures are effective in reducing GHG emissions and are fair and equitable.*

Status: Complete Lead: Environment and Local Government

In June 2019, the provincial government released a policy for the regulation of large emitters, "*Holding Large Emitters Accountable: New Brunswick's Output-Based Pricing System*," for public consultation. Following public consultation, the province submitted its policy approach to the federal government for approval. The New Brunswick Output-Based Pricing System was approved by the federal government in 2020 and came into effect on January 1, 2021. Under the system, large industrial emitters are required to reduce their GHG emissions intensity by 10 per cent in 2030 and electricity generators are required to meet performance standards that have been designed to reduce GHG emissions while minimizing rate impacts on New Brunswickers.

54 *Extend the requirement of Greenhouse Gas Management Plans for Industrial Emitters in New Brunswick (2015) to include the preparation of an energy management plan, in keeping with the Operating Approval condition, pursuant to the Air Quality Regulation of the Clean Air Act.*

Status: Not Complete Lead: Environment and Local Government

The provincial government has completed an initial draft of the Guidelines for GHG Management for Industrial Emitters in New Brunswick (2015) to incorporate the preparation of an energy management plan as part of an emitter's GHG Management Plan. Consultations will be taking place with stakeholders in the near future.

Reduced GHG emissions from waste

55 *Require all regional service commissions to increase the diversion of recyclable materials and organic waste from disposal.*

Status: Not Complete Lead: Environment and Local Government

In October 2019, the provincial government announced its intentions to develop a Packaging and Paper Products Extended Producer Responsibility Program. The program is an environmental policy that gives industry the opportunity to accept its obligation to provide for the end-of-life management of the products it produces. Through consultation, a framework for the program was developed. The framework was used to draft amendments to the Designated Materials Regulation for the inclusion of Packaging and Paper Products. In October 2021, the provincial government approved the amendments to the regulation, making industry responsible for implementing a program for the end-of-life management for these materials. The Packaging and Paper Products program will be implemented in 2023, resulting in the increased diversion of recyclables from regional landfills in the province.

In 2019, the provincial government commissioned an independent study to review the solid waste management service model that has been in operation for the last 30 years. The study was completed in July 2020 and provided recommendations, including one for a province-wide organics diversion program. Using the results of this study as a resource, the provincial government is currently developing a Solid Waste Management Strategic Action Plan, which is expected to include specific strategic actions related to having a province-wide organics program. The program will divert more organics from disposal in regional landfills, which will result in an overall avoidance of GHG emissions. The plan is intended to be released in 2022.

56 *Support further improvements in regional solid waste landfill gas capture.*

Status: Complete Lead: Environment and Local Government

All six of New Brunswick's regional landfills continue to operate landfill gas management systems. Five landfills are producing renewable electricity from methane gas capture. The provincial government will continue to support Regional Solid Waste Commissions as they further improve landfill gas management.

Reduced emissions from agriculture

57 *Work with the federal government to promote the adoption of beneficial farm management practices that mitigate GHGs, including program funding and incentives where appropriate.*

Status: Complete Lead: Agriculture, Aquaculture and Fisheries

The provincial government completed negotiations with the federal government on shared funding under the Canadian Agricultural Partnership (CAP) (2018–2023). This agreement includes financial incentives to assist producers to evaluate the environmental and climate change risks associated with their operations, acquire knowledge and tools to address these risks, and assist in enhancing the agricultural land base.

From January 2018 to March 2022, 136 projects related to climate change mitigation were completed through CAP and the New Brunswick Climate Change Fund. The projects included land drainage, precision farming, nutrient management planning, energy audits and upgrades and renewable energy systems on farms.

Carbon sinks and offsets

58 *Continue to encourage opportunities for increasing forest and agricultural carbon sinks, as part of the development and promotion of sustainable forest programs and beneficial management practices in agriculture.*

Status: Complete **Lead: Natural Resources and Energy Development / Agriculture, Aquaculture and Fisheries**

With respect to agricultural carbon sinks and the promotion of beneficial management practices, Canadian Agricultural Partnership (CAP) funding is available to assist producers in purchasing no-till planting equipment, plant windbreaks, restore wetlands and vegetate riparian zones. In addition, through funding from CAP and the New Brunswick Climate Change Fund, DAAF is coordinating a two-phase research project: Phase 1 - The Evaluation of Greenhouse Gas Emissions and Carbon Capture on New Brunswick Farms; and Phase 2: Benchmarking GHG emissions and carbon sequestration on NB farms in the potato, blueberry and dairy sectors using HOLOS software.

The provincial government took a strategic and operational approach to mitigating climate change through forest management. Department of Natural Resources and Energy (NRED) has strategically incorporated the ability to estimate carbon supply into stand level growth and yield development. This resulted in the ability to estimate current forest level carbon stocks and forecast those stocks 80 years into the future. This forecasting allows for quantifying trade-offs of forest carbon stocks with other values when considering various forest strategy scenarios. This forecasting ability has been incorporated into NRED's evaluations of management strategies for both Crown and private land forests. The department is currently working to understand the role forest management operations have on the stand and forest-level carbon supply, and how to maintain that carbon store in light of changes in natural disturbances (e.g. drought, wind) and growth and yield.

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, with the goal of protecting forest habitats, forest carbon sequestration, and the forest-dependent economy from the impacts of widespread tree mortality. The department has undertaken annual spruce budworm control and has monitored budworm populations and their impacts on the forest. Overall, budworm populations have been relatively stable, some localized, light defoliation has been detected, and no increased tree mortality has resulted.

59 *Encourage the expansion, restoration, preservation and management of green buffers and urban forests.*

Status: Complete **Lead: Environment and Local Government**

The provincial government continues to encourage the expansion, restoration, preservation and management of green buffers and urban forests through the Watercourse and Wetland Alteration (WAWA) permitting regulatory process. Applicants are required to avoid working within 30 metres of watercourses and wetlands wherever possible, minimize impacts where they are unavoidable, and compensate for the impacts that do occur.

Since 2020 and the release of the updated WAWA Reference Map, a continued effort was put into raising public awareness. Multiple presentations have been offered to NGOs, other provincial government departments, and various other groups. Extensive field training on wetland delineation and identification as well as presentations on the subject were also conducted. Along with the mapping update, the provincial government now regulates all wetlands as they appear on the ground (versus only the ones identified on the previous wetland mapping). This update, combined with the improved accuracy of the mapping, has significantly increased the number of WAWA permits and inquiries the program receives, which ultimately increases wetland management and protection.

Collaboration continues with the forestry industry, marketing boards, and other provincial government departments to facilitate permitting requirements and offering better tools to identify forested wetlands (i.e. fact sheets, presentations, education in wetland identification on the ground, desktop review tools, etc.).

60 *Explore the opportunity for participation in carbon offset markets (voluntary and regulated) as a means to capture GHG emissions and economic opportunities for New Brunswickers, in accordance with accepted offset project design, measurement and verification protocols.*

Status: Complete Lead: Environment and Local Government

As part of the Pan-Canadian Framework on Clean Growth and Climate Change, the New Brunswick government worked together with federal, provincial and territorial governments to examine options for a pan-Canadian greenhouse gas emissions offsets framework.

In September 2019, the provincial government commissioned a study to identify and evaluate the compliance offset supply potential available in New Brunswick. Following targeted stakeholder engagement on the draft report, a final report was completed in 2020. The study will be used to inform New Brunswick's position with respect to a provincial offset system.

The federal government is currently developing a national system for the creation of compliance quality offset credits across Canada. New Brunswick is participating in federal-provincial discussions to help inform the development of the national system. Once completed, it is expected that New Brunswick individuals and businesses will be permitted to establish and register qualifying offset projects under the federal program.

61 *Encourage the use of wood products (a renewable construction material and to sequester carbon for the long term) in construction, including through building codes, standards and procurement policies.*

Status: Complete Lead: Justice and Public Safety

New Brunswick adopted the 2015 National Building Code of Canada in February 2021. The 2015 Code allows for the construction of wood-framed buildings of up to six storeys.

Planning for smart, low-carbon development

62 *Encourage community and regional land-use planning practices that incorporate energy efficiency, energy conservation, carbon sequestration, reduced emissions, support healthy built environments and which incorporate and encourage communities to improve the availability and accessibility of safe alternative forms of transportation such as walking, cycling and public transit.*

Status: Complete Lead: Environment and Local Government

As part of the process to ensure that land use planners have the most recent information available on climate change, provincial government employees participated in the 2018 Atlantic Planners Conference in Moncton. The Provincial and Community Planning Branch in the Department of Environment and Local Government continues to provide land-use planners across New Brunswick with information on climate change and climate change adaptation as it becomes available, including webinars and new climate data.

63 *Provide incentives to promote smart growth (natural infrastructure, green buildings, low-impact developments) and sustainable community design.*

Status: Complete Lead: Environment and Local Government

The provincial government promotes the use of natural infrastructure and natural assets by funding projects, initiatives, workshops, and presentations on natural assets and the use of natural infrastructure through the Environmental Trust Fund. The results included presentations and workshops for planners, developers, municipal officials and the general public.

In 2018, new tools were made available in the *Community Planning Act* to support addressing climate change, such as incentive and bonus zoning by-laws, and development charge by-laws that help planners improve urban density and promote compact urban design.

In 2021, the *Community Planning Act* was amended to require all land use plans to include policies related to climate change adaptation and mitigation.

64 *Incorporate GHG emission reduction considerations into lifecycle assessments of infrastructure projects.*

Status: Complete **Lead: Transportation and Infrastructure**

Significant infrastructure projects that have been cost shared with the Federal government have been required to apply a climate lens and risk assessment to ensure that actions are being taken to reduce GHG emissions. This federal requirement is to ensure that actions are taken to reduce GHG emissions.

The Department of Transportation and Infrastructure (DTI) continues to improve its asset management modelling for roads to ensure they are in good condition, which leads to better fuel economy and reduction in GHG emissions from commercial and passenger vehicle traffic.

In 2021, DTI worked with a consultant to develop a GHG Reduction tool with resources from the New Brunswick Climate Change Fund. The information will guide transportation capital construction projects to include climate change considerations in DTI's Long-term Capital Guidance.

65 *Include in the upcoming modernization to the Community Planning Act and Municipalities Act, the ability to respond to the needs of local governments and their priorities for mitigation.*

Status: Complete **Lead: Environment and Local Government**

In 2018, new tools were made available in the *Community Planning Act* that support addressing climate change, such as incentives and bonus zoning by-laws, and development charge by-laws which help planners improve urban density and promote compact urban design.

ADAPTATION TO THE IMPACTS OF CLIMATE CHANGE

Understand climate change impacts

66 *Strengthen research capabilities into the impacts of climate change by identifying research priorities, developing a research network and encouraging greater collaboration and sharing of information across partners (e.g., academic institutions, other jurisdictions, federal government, NGOs).*

Status: Complete **Lead: Environment and Local Government**

The provincial government has an active research network and liaises with several leading climate change researchers.

The provincial government completed a review to better understand the gaps in climate-related research. This included barriers or challenges faced by various sectors in New Brunswick as a result of climate change, and potential research questions that could be pursued to better understand impacts on New Brunswick's social, economic, biological and physical fabric. Barriers, challenges, and potential research topics were identified during interviews with New Brunswick representatives of business, economic, research and environmental sectors. The climate change research questions of potential relevance to New Brunswick were summarized from a literature review.

67 *Develop a more coordinated approach to tracking changes in the physical environment, (e.g., temperature, precipitation, sea levels and migration of pests and invasive species) in collaboration with other partners to be used in future climate modelling.*

Status: Complete **Lead: Environment and Local Government**

The provincial government directly engaged a broad network of stakeholders and partners in an effort to coordinate the tracking of changes in the physical environment, to be used in future climate modelling.

Researchers, institutions, and data curators were assembled to provide specifics on the type of data/science/information they developed or maintain, and identify what gaps exist in modelling future climate. Examples of relevant information included

- a. Future Sea-Level Rise and Flooding Estimates,
- b. species diversity and distribution,
- c. urban versus rural mean temperatures,
- d. marine species response to warming ocean temperatures, etc.

This action has increased collaboration among this network, expanded research focus into new areas, and reaffirmed that multidisciplinary contributions are required to best inform the climate science New Brunswickers rely upon to best adapt to the impacts of climate change.

68 *Acquire the most up-to-date predictive climate change information for all parts of the province and ensure the modelling capacity exists to support decision-making.*

Status: Complete Lead: Environment and Local Government

The provincial government has consistently acquired the most up-to-date climate change projections and datasets for the historical observation period of 1980–2010 and the future periods 2020, 2050 and 2080.

In 2016, the provincial government commissioned a report by the climate services centre OURANOS. The report identified projected changes in twenty-nine climate variables. The climate change projections were made available on the Department of Environment and Local Government website and broadly distributed. The climate change projections will be used to inform the public, municipalities, regional service commissions (RSCs), various sectors adaptation practitioners, as well as planning and engineering professionals, on what climate conditions New Brunswick could experience to the year 2100.

Additionally, Sea-Level Rise and Flooding Scenarios were updated in 2020.

The report was used as baseline data to create New Brunswick's Flood Hazard Mapping ([New Brunswick Flood Hazard Maps \(snb.ca\)](#)). Flood hazard mapping uses the latest information and modelling technology to identify areas at risk and incorporates the effects of climate change to help inform flood-prone areas and the effect of climate change on water levels in the province.

69 *Acquire, and make available publicly, LiDAR data for mapping land elevations to be used across all sectors in planning for future climate conditions, especially for flood risk mapping and coastal erosion.*

Status: Complete Lead: Service New Brunswick

The provincial government acquired publicly available LiDAR data for the full province. The information is being used in planning for future climate conditions. Service New Brunswick (SNB) is continuing the process of extracting useful data from the LiDAR data for uses such as climate change and flood mapping and other earth observation uses and other earth observation uses.

In late 2021, SNB publicly released building outlines for buildings greater than 10m² for the entire province, complete with the lowest elevation and the highest point of the building, for analysis of the effects of water level change on buildings, such as the recently released flood hazard mapping by the Department of Environment and Local Government.

70 *Support the development of analytical and educational tools to help communities, infrastructure owners (roads, power lines, etc.) and the natural resources sector identify their vulnerabilities and take action to adapt.*

Status: Complete Lead: Environment and Local Government

Since 2017, the provincial government has supported and funded the development of analytical and educational tools and products that allow communities, infrastructure owners, and the natural resources sector to better

consider the impacts of climate change in decision-making. These include the 2017 and 2020 reports on sea-level rise and flooding scenarios for coastal sections of New Brunswick (Daigle 2017, and Daigle 2020), a Guidebook for municipalities on how to develop their climate change adaptation plans, province-wide LiDAR data, climate mapping showing projected climate by region, municipality, and eco-ecoregions, and New Brunswick Flood Hazard Mapping for Coastal and Inland sections of New Brunswick.

The Climate Change Secretariat continues to support the stakeholders, partners, and researchers in developing numerous other tools and resources, which have received financial assistance from the New Brunswick Environmental Trust Fund.

Build climate-resilient infrastructure

71 *Promote and use natural infrastructure (e.g., forests, wetlands, salt marshes, floodplains) as an important tool to buffer against climate change impacts.*

Status: Complete Lead: Environment and Local Government

The provincial government continues to promote the use of natural infrastructure as an important tool to buffer against climate change impacts. Through the application of the New Brunswick Wetlands Conservation Policy, coastal marshes and wetlands within the Saint John River floodplain are classified as Provincially Significant Wetlands, and very limited activities are permissible.

Since the release of the new Watercourse and Wetland Alteration Reference Map in January 2020, there is now the flexibility to incorporate new wetland mapping data to update the mapping and improve its accuracy on a yearly basis. The last update occurred on July 1st, 2021 and incorporated various delineations conducted by the Department of Environment and Local Government (ELG) and consultants.

In consultation with the New Brunswick Climate Change Secretariat, Environment and Climate Change Canada, NGO's and municipalities, ELG is working on developing a public guidance document on naturalized stormwater retention basins. The guidance document will contain information on the financial and environmental benefits of conserving existing natural features or creating natural features such as wetlands to manage stormwater drainage near new developments. Compared to grey infrastructure, which provides minimal ecosystem functions or benefits, these natural features provide other important ecosystem functions such as wildlife habitat, nutrient retention, and carbon storage. The guidance document will provide information on regulatory requirements, incentives and management of these features.

72 *Ensure that the impacts of climate change and extreme weather are considered in all infrastructure decisions and the lifecycle assessment of all infrastructure projects (design, construction, operation, and maintenance).*

Status: Complete Lead: Transportation and Infrastructure

The provincial government considers the impacts of climate change and extreme weather in infrastructure decisions and in the lifecycle assessment of infrastructure projects. Provincial infrastructure such as roads and bridges are designed according to specifications and standards established by accredited engineering organizations to withstand future climate conditions. For example, in flat areas/floodplains, bridges are typically built 1.0 m above the highest ever recorded flood level. In coastal areas, the Department of Transportation and Infrastructure (DTI) considers the latest sea-level rise predictions to determine appropriate bridge deck elevations. The provincial government continues to invest in dyke maintenance to provide the necessary protection from storm events and sea-level rise when provincial infrastructure is compromised. The provincial government has worked with Nova Scotia to increase awareness of the climate risk posed to the Chignecto Isthmus and is examining options to protect the transportation corridor within the isthmus from the impacts of climate change. Newly created tools such as New Brunswick's Coastal and Inland Flood Hazard Mapping will further inform the design and placement of infrastructure, ensuring these installations are resilient to the projected impacts of climate change.

The Department of Transportation and Infrastructure is developing a document outlining how it considers climate change and extreme weather impacts in all infrastructure decisions. Through an investment from the New Brunswick Climate Change Fund, a consultant has been engaged to complete a study to identify the long-term impacts of climate change on the existing transportation network. The first phase will be completed in 2022. The second phase will be completed in 2023. Additionally, the department is undertaking a Multi-year Culvert Assessment to inspect all of DTI's large culverts (those measuring 3+ m), allowing the department to increase the capacity of its culvert infrastructure to adapt to climatic events. One large culvert renewal project that has been completed in partnership with the City of Moncton was the renewal of the Michael's Creek Culvert.

73 *Work with the provincial infrastructure owners (e.g., Department of Transportation and Infrastructure, NB Power, Bell Aliant) to ensure that climate change adaptation plans are completed for all critical infrastructure by 2020.*

Status: Not Complete Lead: Environment and Local Government

The Climate Change Secretariat (the Secretariat) focused on engagement with the Department of Transportation and Infrastructure (DTI) to support their mandate by guiding them on incorporating climate science into the planning, design, building and operation of their infrastructure. Sharing the latest climate projections and tools helps ensure that provincial assets and operations are resilient to future climate conditions and the impacts of climate change.

Engagement with utility owners such as Bell Aliant and NB Power resulted in an increased awareness of the potential impacts of climate change on their respective organizations, spurring interest which led to NB Power completing its own climate change adaptation plan in 2021. The Secretariat will continue to facilitate the creation of vulnerability assessments and adaptation plans with provincial infrastructure owners and other sectors that contribute significantly to the province's economy and sustainability.

74 *Work with municipalities to evaluate vulnerabilities of critical infrastructures (e.g., drinking water supplies and sewage treatment systems) and ensure they are resilient to climate change impacts.*

Status: Complete Lead: Environment and Local Government

Through the adaptation planning process, several municipalities have begun work on evaluating the vulnerability of their critical infrastructures, such as drinking water supplies and sewage treatment systems. Climate change adaptation planning initiatives, such as the implementation of adaptation measures aimed at reducing the risks of climate change to critical infrastructure, have been supported through the Environmental Trust Fund. Municipalities are now required to further evaluate their assets against climate change impacts as part of their asset management requirements. This work is intended to make asset management systems more robust by considering the condition of assets in regard to maintenance and incorporating a climate lens on assets to assess their resilience better, thus furthering adaptation planning around upgrading existing infrastructure and building back better.

75 *Develop guidelines for the consideration of climate change in infrastructure decision-making.*

Status: Not Complete Lead: Environment and Local Government

Although the provincial government considers the impacts of climate change and extreme weather in all infrastructure decision-making, a formal guideline is still in the development process.

Beginning in 2021, the Department of Transportation and Infrastructure began conducting a Vulnerability Assessment of its transportation network.

Support community adaptation planning

76 *Ensure NGOs and local community partners are supported so they can continue to guide communities through the adaptation planning process.*

Status: Complete Lead: Environment and Local Government

Through the Environmental Trust Fund (ETF), the provincial government has supported multiple NGOs and local community partners to guide communities through the adaptation planning process.

NGOs and local community partners delivered adaptation planning initiatives which included: assisting municipalities in identifying major vulnerabilities and adaptation measures that could be implemented to resolve these vulnerabilities; assisting regional service commissions in conducting vulnerability assessments, and developing climate change adaptation plans for unincorporated areas assisting researchers in the production of climate data and tools to best inform decision-making; and supporting other NGO's in creating collaborative networks and communities of practice focused on climate change. NGO's are instrumental in producing and disseminating educational and awareness materials on 'large impact' topics such as sea-level rise, flooding and erosion, floodproofing homes and properties, climate emergency preparedness, impacts of rising mean temperatures on public health, agriculture, natural resources, water quality, etc.

The ETF also assisted First Nations communities in conducting vulnerability assessments and completing climate change adaptation plans.

77 *Phase-in the mandatory preparation and implementation of climate change adaptation plans for local and municipal governments that apply for provincial infrastructure funding. Provide capacity-building support to enable this action and develop guidelines to assist in the preparation of the required adaptation plans.*

Status: Not Complete Lead: Environment and Local Government

Over half of New Brunswick's municipalities have completed climate change adaptation plans. Numerous other municipalities will be seeking Environmental Trust Fund funding to develop their own adaptation plan, realizing the importance of building their community's resilience to the impacts of climate change.

The momentum generated by municipalities that completed climate change adaptation plans early has resulted in the municipal associations becoming more aware of the value of assessing the vulnerabilities of their member municipalities and identifying appropriate adaptation measures they can implement to reduce their vulnerabilities. It can also provide an advantage in terms of accessing funding.

The Climate Change Secretariat will continue to work closely with municipalities in facilitating the development of their municipal climate change adaptation plans.

78 *Conduct climate change adaptation planning at a regional scale and empower regional service commissions to coordinate this exercise.*

Status: Complete Lead: Environment and Local Government

The Southwest Regional Service Commission, Commission de services régionaux Nord-Ouest, and Commission de services Chaleur have completed their regional climate change adaptation plans. Regional climate change adaptation planning benefits unincorporated areas such as Local Service Districts and smaller municipalities that often lack the capacity to develop their own adaptation plans.

Adaptation planning work, such as developing vulnerability assessments and adaptation tools, is ongoing in the Commission de services régionaux Péninsule and the Southeast Regional Service Commission. The two Commissions have completed a detailed coastal flood and erosion risk assessment of their complete coastline extending from Belledune to Neguac. The risk assessment also produced a projected location of the actual coastline in the year 2100. This information is vital to land-use planning initiatives aimed at reducing exposure to risk and building resilience along a section of coastline considered one of the most at-risk in New Brunswick.

The provincial government will continue to support and facilitate regional adaptation planning.

79 *Include in the upcoming modernization the Community Planning Act and Municipalities Act, the ability to respond to the needs of local governments and their priorities for adaptation.*

Status: Complete Lead: Environment and Local Government

In 2018, new tools were made available in the *Community Planning Act* that support addressing climate change, such as incentives and bonus zoning by-laws, and development charge by-laws which help planners improve urban density and promote compact urban design.

80 *Implement statements of provincial interest under the Community Planning Act to establish province-wide standards and requirements for responding to climate change at the community level, such as flood risk reduction.*

Status: Not Complete Lead: Environment and Local Government

The *Community Planning Act* allows the provincial government to establish the Statements of Provincial Interests. In 2021, with the release of the Green Paper on Local Governance Reform, the provincial government committed to working towards Statements of Public (Provincial) Interest, which will include consideration of climate change.

81 *Collaborate with the cities to ensure that climate change vulnerability assessments and adaptation plans are completed by 2020.*

Status: Complete Lead: Environment and Local Government

All eight New Brunswick cities completed their vulnerability assessments and adaptation plans by the end of 2020.

82 *Collaborate with the municipalities and regional service commissions to ensure that climate change vulnerability assessments and adaptation plans are completed for our highest risk municipalities by 2020.*

Status: Complete Lead: Environment and Local Government

The provincial government identified the highest risk municipalities, which included all coastal communities with a history of flooding. By the end of 2020, all highest risk municipalities completed their vulnerability assessments and adaptation plans.

Adapt natural resources and agriculture

83 *Incorporate climate change knowledge into Crown land operating plans, silviculture planning and all forest management plans.*

Status: Complete Lead: Natural Resources and Energy Development

Forming partnerships towards education, training and research efforts is an important component of the Department of Natural Resources and Energy Development (NRED) approach to adapting forests to climate change. In March 2018, NRED hosted an information session on Adapting New Brunswick's Forests and Ecosystems to Climate Change. It served to increase awareness of current climate change policy and science, and to discuss the next steps required to fulfill New Brunswick's commitments to adapt natural resources management to climate change. A series of action items related to threats, opportunities, and challenges identified during a session have been prioritized for adaptation planning by the department.

NRED collaborated on two research projects. The first project was in partnership with the Canadian Forest Service (CFS) and included identifying and integrating impacts of projected climate scenarios on stand level tree regeneration and tree growth and mortality into forest management planning tools used by the NRED. The project results have been incorporated into tools the department uses to develop forest management plans. The department is now situated to evaluate expected climate change impacts on the values (wood supply, conservation etc.) and management activities that focus on current and future forest management plans.

The second project was a collaboration with UNB, CFS and Northern Hardwood Research Institute to evaluate the costs and benefits of adapting to climate-induced changes in drought and wind regimes in New Brunswick forests. The project resulted in many spatial annual climate change maps for temperature, Fire Weather Index, precipitation, wind, etc. under RCP 4.5 and 8.5. A climate change silviculture adaptation guidebook and website were developed by the [Northern Hardwood Research Institute](#). An analysis of the economic impact of a number of forest management simulations (worst case scenarios) was performed using some of the results from the first project.

The provincial government developed a plan for Crown Road management. A vulnerability assessment and outlining management and operational recommendations are the basis for improved forest road asset management practices and future asset management decisions.

84 *Work with natural resources managers to ensure that climate change adaptation plans are completed by 2022 to address major climate threats.*

Status: Not Complete **Lead: Natural Resources and Energy Development**

This Action is linked to Action 83 and 90. Much work has been done on forest roads, fire operations, incorporating climate knowledge into forest models and conservation planning, yet still more remains to be done to fully develop adaptation plans that consider climate pressures on the management of natural resources.

Recommendations from the Crown Roads vulnerability assessment will be implemented through an adaptation plan to improve asset management systems over the long term and focus attention on adaptation practices that can address high risk infrastructure-climate interactions in the short term. To prioritize preventative protection, a pilot project was completed to inventory watercourse crossings and their conditions along critical Crown Forest roads.

The Department of Natural Resource and Energy Development's Forest Fire Management Branch (FFMB) remains active within the national and international wildfire organizations to keep up with the changing climate and its possible effects on local, national and international wildfire regimes. A plan to adapt forest fire operations to impacts from climate change has been completed and will evolve as science and technology advances.

The FFMB has upgraded its fire weather systems to gather more accurate and consistent fire weather data to be better prepared to react to extreme fluctuations in the local fire weather.

85 *Support research into the impacts of climate change on agriculture and examine new crop and market opportunities as a result of changing growing conditions.*

Status: Complete **Lead: Agriculture, Aquaculture and Fisheries**

The provincial government completed negotiations with the federal government on shared funding under the Canadian Agricultural Partnership (CAP) (2018–2023). One element of this agreement involves research and innovation.

While projects that specifically address climate change are not solicited, priority is given to projects that address this issue, including new crops that may respond positively under climate change scenarios.

Since 2018, 33 research projects with climate change implications have received funding through CAP. Project work includes but is not limited to; crop variety trials, production system changes to reduce soil erosion and temperature, rotational grazing and diverse cover crop research, research on efficient nitrogen application; the New Brunswick agricultural weather network; effects of water stress and supplemental irrigation on potato, blueberry and apple production under climate change conditions; promoting resilient soil health and ecosystem services with diverse cover crops; and a soil health benchmarking reference.

86 *Encourage future federal-provincial-territorial funding agreements to include a stronger focus on climate change.*

Status: Complete **Lead: Agriculture, Aquaculture and Fisheries**

The Canadian Agricultural Partnership (CAP) agreement (2018–2023) with the Federal government includes a stronger focus on climate change.

Since 2018, CAP has provided the provincial government, through the Department of Agriculture, Aquaculture and Fisheries, opportunities to continue to invest in New Brunswick's agriculture sector with added focus on addressing climate change and other environmental issues.

87 *Take measures to advance agricultural practices that promote soil health and reduce vulnerability to soil erosion.*

Status: Complete **Lead: Agriculture, Aquaculture and Fisheries**

The Canadian Agricultural Partnership (CAP) includes financial incentives to assist producers to evaluate the environmental and climate change risks associated with their operations, acquire knowledge and tools to address these risks, and assist in enhancing the agricultural land base.

From January 2018 to March 2022, 146 projects related to climate change adaptation were completed through the CAP and the Climate Change Fund. Examples of funded projects included soil drainage, soil conservation, riparian protection, water supply and irrigation management.

88 *Strengthen the existing program to assist with riparian buffer restoration in agricultural areas, recognizing that riparian buffers between agricultural activities and watercourses are important to address erosion and runoff from extreme weather events.*

Status: Complete **Lead: Agriculture, Aquaculture and Fisheries**

The contribution rate toward riparian buffer restoration projects was raised from 70 per cent in the last funding agreement to 75 per cent for the current Canadian Agricultural Partnership (CAP) funding program. Riparian protection /enhancement project applications are immediately prioritized for funding when received.

There have been 22 riparian protection/restoration projects funded through CAP and the New Brunswick Climate Change Fund from January 2018 to March 2022.

89 *Recognize the importance of ecosystems (e.g., wetlands, forests, soil, dunes, and coastal salt marshes) in buffering the impacts of climate change, and integrate ecosystem services (e.g., temperature control, maintaining air quality, erosion control, water quality improvement, flood reduction) into land-use planning.*

Status: Complete **Lead: Environment and Local Government**

The provincial government continues to recognize the importance of ecosystems in buffering the impacts of climate change and integrating ecosystem services into land-use planning.

The provincial government continues the implementation of the Wetland Ecosystems Services Protocol for Atlantic Canada (WESP-AC). This assessment tool enables consultants, NGOs, and other interested parties to rapidly assess wetlands and generate scores of functions the wetland provides. In 2020, an online guidance document for the uses and benefits of the tools was released to the public. Revisions were made and released in 2022 to include information on how WESP-AC can be used to improve resilience against the impacts of climate change.

Wetlands can help protect New Brunswick's communities by providing services or functions such as water storage and delay to help mitigate flooding, stabilization of shorelines to help mitigate erosion and carbon sequestration to help mitigate the effects of GHGs. WESP-AC helps identify and prioritize high functioning wetlands with respect to these specific functions. The goal is to adapt procedures/guidelines to more robustly protect these important areas and avoid conversion of these areas through land use planning.

In 2021, the Department of Environment and Local Government (ELG) partnered with Ducks Unlimited Canada through a multi-year project to increase their capacity to work with Regional Service Districts in their land use planning using the WESP-AC tool and provide them with mapping which identifies priority wetland areas.

The Source and Surface Water Management Branch and the Provincial and Community Planning Branch in the Department of Environment and Local Government continue to work together to identify how their mandates align. They will look for opportunities for improved coordination of subdivision reviews and approvals and to avoid important environmentally significant features such as wetlands and coastal zones.

90 *While balancing the economy and the environment, identify and focus on the most climate-vulnerable species, habitats, and landscapes as targets for adaptation action and manage for landscape connectivity to allow for species migration.*

Status: Complete Lead: Natural Resources and Energy Development

The provincial government has initiated, with various partners, a number of projects aimed at identifying those biodiversity components and ecological functions most at risk from climate change. The Department of Natural Resources and Energy Development (NRED) has conducted a climate change vulnerability assessment of wildlife species and ecosystems to identify and help focus on species, habitats and landscapes most vulnerable to expected climate change impacts.

An Ecological Aquatic Connectivity Assessment project was completed in 2022 with the Nature Conservancy of Canada that assessed aquatic connectivity across New Brunswick's streams, rivers and lakes, including current functional connectivity and connectivity issues resulting from climate change.

A Terrestrial Connectivity Assessment project was completed in 2022 by the Landsat Habitat Change Modeling Network that assessed the impacts of habitat configuration, amount and connectivity on bird populations in New Brunswick, focusing on forest bird species and links to climate conditions.

In 2020, a five-year project was initiated in partnership with the Canadian Rivers Institute at the University of New Brunswick to increase understanding of the mechanisms of water flow in forested landscapes, specifically building a conceptual framework of water pathways through New Brunswick landscapes based on hydrological landscape sensitivity and resilience. In its first year, the project defined Hydrological Units (HU's) and produced HU resiliency maps for New Brunswick streams.

NRED has also partnered with Ducks Unlimited Canada to maintain the ecological and wetland function of managed wetlands in floodplains.

The provincial government is actively engaged in the New England Governors and Eastern Canadian Premiers Ecological Connectivity working group which provides access to best practices and an opportunity to network and engage with partners across North America.

91 *Develop guidelines for project proponents to ensure that future climate considerations are incorporated into Environmental Impact Assessment applications.*

Status: Not Complete Lead: Environment and Local Government

Work is still underway to complete an Environmental Impact Assessment (EIA) climate change considerations guideline, which will help project proponents assess climate change within the EIA process.

92 Collaborate with the federal government to: a. Ensure that sufficient refuge harbours and wharves exist for protection from storm events; b. Adjust the timing of fishing seasons in response to changing marine conditions; and c. Move more quickly to take advantage of new fisheries that may appear in New Brunswick waters.

Status: Complete Lead: Agriculture, Aquaculture and Fisheries

The provincial government continues to engage the federal government on the actions identified: support and promote the need for sufficient refuge harbours and wharves exist for protection from storm events; to identify and discuss opportunities to adjust the timing of fishing seasons in response to changing marine conditions; and to encourage a more agile regulatory structure that would take advantage of new fisheries that may appear in New Brunswick waters. However, it is important to note, that the provincial government does not have jurisdictional authority to implement these actions but will remain engaged with the federal government in these discussions to ensure support and collaborative work on these important issues. The provincial government completed negotiations with the federal government on shared funding under the Atlantic Fisheries Fund (AFF) (2017–2024). The AFF provides financial support to our fisheries, aquaculture and seafood processing sectors to increase productivity, competitiveness, quality, and sustainability in the fish and seafood sector; as well as enhance the capacity to adapt to and address ecosystem shifts and their impacts on the fish and seafood sector, including shifts related to climate change. Through this funding, it is expected that the fish and seafood sector will have an understanding of, and an ability to adapt to, transitioning ecosystems that are impacted by climate change, in addition to having critical infrastructure adapting to respond to changing conditions.

The Atlantic Fisheries Fund supported 27 projects related to climate change adaptation. Project examples include

- 1) The modernization of a refrigeration systems with new technology for low global warming potential and sustainable alternatives to synthetic refrigerants; and
- 2) The acquisition of Notus Echo System to maximize the efficiency of shrimp trawl fishing by reducing fuel consumption through the elimination of long water tows.

Reduce climate-related hazards

93 Ensure provincial disaster financial assistance programs and insurance products are responsive to climate change.

Status: Complete Lead: Justice and Public Safety

Since 2017, overland flood insurance has been made increasingly available to homeowners and businesses in New Brunswick. The provincial Disaster Financial Assistance program has been revised accordingly but will continue to be required in cases where such insurance is not currently available or affordable due to high risk. In such cases, mitigation funding is also available for eligible claimants.

Also, in Spring of 2020, the National Disaster Mitigation Program was extended for an additional two years to incentivize provinces and municipalities to undertake further mitigation projects to incorporate climate change adaptation into recovery efforts. The cities of Fredericton and Saint John, and the town of Sussex have received funding through the Program.

94 Consider future climate conditions when making decisions about replacing or repairing infrastructure following disasters (“build back better” or relocate).

Status: Complete Lead: Transportation and Infrastructure

The provincial government considers future climate conditions when making decisions about replacing or repairing infrastructure following disasters. When replacing and installing new infrastructure it is designed according to specifications and standards established by accredited engineering organizations to withstand future climate conditions. The provincial government uses the latest sea-level rise projections, LiDAR data, and the first-ever iteration of wave run-up estimates for New Brunswick’s coastal waters.

95 *Continue to promote and support opportunities to share information amongst adaptation practitioners, the general public and emergency management officials with an aim to increase our collective resilience.*

Status: Complete Lead: Environment and Local Government

New Brunswick benefits from having numerous well-established collaborative groups working towards bringing together adaptation practitioners, municipalities, infrastructure owners, emergency management officials, and the public to share information, research, and data broadly to communicate climate change adaptation knowledge.

The provincial government uses the Environmental Trust Fund to promote and support the initiatives of NGOs. The Smart Shift Summit, held in Moncton in March 2017, launched an awareness campaign on the key theme areas; Smart Economy, Electricity Shift, Planning for Change, Innovation on the Land, and Efficient Energy Use.

The New Brunswick Environmental Network organized multiple conferences and outreach activities on adaptation plans that informed environmental and climate change practitioners, professionals, multiple sectors important to our economy, and decision-makers.

The Association of Municipal Administrators of New Brunswick engaged municipal professionals, produced a bilingual guide/ playbook on climate change, and conducted two provincial workshops. Workshops provided an opportunity to learn about improving climate resilience, disaster risk reduction, climate change adaptation and emergency preparedness.

Various NGOs have delivered workshops and training sessions and installed adaptation measures such as rain gardens, green buffers, green roofs, and living shorelines. They have been instrumental in educating New Brunswickers on sea-level rise and flooding, the benefits of natural ecosystem assets and nature-based solutions to climate impacts, and the impact climate will have on human health.

96 *Renew and expand its flood hazard data and mapping and ensure that these predictive tools incorporate the anticipated effects of climate change in parallel with the development of a provincial statement of interest that addresses flood risk and climate.*

Status: Complete Lead: Environment and Local Government

With funding support from Canada's National Disaster Mitigation Fund, the Department of Environment and Local Government updated and expanded flood [hazard mapping for New Brunswick](#). The flood hazard maps identify areas at risk of flooding, providing valuable information to the public, communities, and local governments so they can plan and prepare for future flood events. The state-of-the-art maps cover New Brunswick's coastlines, and many rivers prone to flooding and incorporate the future impacts of climate change with predictions to 2100.

97 *Examine the relationship between watershed condition, land use and peak flow events associated with extreme precipitation.*

Status: Complete Lead: Environment and Local Government

A review was completed, including current knowledge on the relationship between climate change, land use change, ecosystem flood protection capabilities, and peak flow events. The review also looked at how the changing climate will affect New Brunswick, identification of challenges the province will face and recommendations for future work that will aid New Brunswick in mitigating/adapting to these impacts.

98 *Encourage the insurance industry to make flood insurance available to high-risk homeowners and promote awareness of available products.*

Status: Complete Lead: Justice and Public Safety

Option analysis on risk sharing of flood expenses suggests that provinces may revise eligibility for Disaster Financial Assistance programs if overland flood insurance becomes available to all property owners at reasonable costs. Federal-Provincial-Territorial officials continue to work with the Insurance Bureau of Canada to expand coverage options. In addition, the federal government will be considering a national action plan to assist homeowners in high risk areas in accessing flood insurance protection.

Public Safety Canada has put together a Federal, Provincial, and Territorial Task Force on the Flood Insurance and Relocation Project. The Task Force will examine options for low-cost residential flood insurance to residents of high-risk areas. It will also consider options for potential relocation for residents of areas at the highest risk of recurrent flooding. The final report "Adapting of Insurance Solutions for Canada" will be presented to the Senior Officials Responsible for Emergency Management (SOREM) later this year.

Reduce climate change impacts on public health

99 *Develop a public health communication strategy and continue to work collaboratively to educate the public, and other stakeholders, on the climate change impacts on human health.*

Status: Complete Lead: Health

The public health communication strategy was completed in 2019. Public health professionals throughout the province were educated on the impacts of climate change on human health. This will provide a basis for educational information to be shared with the public regarding the climate change impacts on human health.

100 *Support ongoing research into climate-related health risks, including drinking water quality and quantity, increased risk of heat-related incidents, psychological and physiological impacts of extreme weather events and the potential spread of vector-borne diseases.*

Status: Complete Lead: Health

The provincial government completed a review to better understand the current state of health-related climate change research in New Brunswick. This work included the identification of potential knowledge gaps regarding climate-related health risks and potential actions and research in a New Brunswick context related to the key themes. A literature review and interviews with researchers and representatives of NGOs were completed to identify key themes of climate-related health risks and potential impacts on the health and wellbeing of New Brunswickers. This work also included possible ways of encouraging networking and collaboration.

101 *Continue to implement, and support, an extreme Heat Alert and Response System (HARS) throughout New Brunswick.*

Status: Complete Lead: Health

The provincial government continues to actively implement the Heat Alert and Response System (HARS) throughout the province. The provincial government will continue to work closely with the federal government to review how information is exchanged between the two government bodies and make improvements to the system where needed.

102 *Explore, and support in partnership with other departments, the development of health surveillance tools for morbidity, mortality and mental health stress among the public following extreme weather.*

Status: Complete Lead: Health

In 2019, with funding from the federal government, the provincial government developed a syndromic surveillance scoping paper to conduct a capacity and needs assessment and methods for monitoring the health impacts of climate change. The final report, "Report to Support the Development of a Syndromic Surveillance System to Monitor the Health-Related Impacts of Climate Change in New Brunswick," was submitted to Public Health New Brunswick for consideration.

University of New Brunswick researchers also completed studies of the mental health impacts of extreme events, such as the Saint John River flooding in 2018 and 2019.

103 *Explore, and support in partnership with other departments and federal agencies, municipalities, the development of new warning tools for public health hazards linked to climate change such as extreme heat, air quality, forest fire smoke, vector-borne diseases, etc.*

Status: Complete Lead: Health

The work on this action included consideration of various climate-related health risks and relevant monitoring and warning systems (identified from a literature review) that are operational in New Brunswick and currently used in other jurisdictions. Consideration was given to potential work that could be taken to help improve the accessibility of monitoring and warning tools for New Brunswickers or how to improve those currently available. The Heat Alert and Response System is an example of a warning tool developed in partnership between the provincial and federal governments.

104 *Assess public health risks in drinking water quality and quantity, increased risk of heat-related incidents, psychological and physiological impacts of extreme weather events and the potential spread of vector-borne diseases.*

Status: Complete Lead: Health

Assessment of public health risks related to drinking water quality is a standard public health function, and potential climate change impacts to such systems would inform such assessments.

Since 2017, the work on this action included consideration of public health risks related to drinking water quality and quantity; a review of key characteristics of New Brunswick's drinking water including sources, system types, governance and current state; potential climate-related impacts to drinking water identified from a literature review and potential actions that could be taken to mitigate risk.

Matters related to increased risk of heat-related incidents, psychological and physiological impacts of extreme weather events and the potential spread of vector-borne diseases were also considered in work undertaken related to Actions 66, 100 and 103, as outlined in this progress report.

ECONOMIC OPPORTUNITIES

105 *Design and implement a clean-technology acceleration strategy that builds on early-stage innovation research, development and demonstrations (RD&D); accelerates clean technology commercialization; fosters greater clean technology adoption; and enhances connections and collaboration between business market needs and research expertise to accelerate the development and use of clean, low-carbon technology solutions.*

Status: Complete Lead: Opportunities New Brunswick

Announced in the fall of 2021, Opportunities New Brunswick (ONB) has partnered with the New Brunswick Innovation Foundation to deliver on a Clean Technology innovation initiative to develop a pipeline of clean technology innovation in the province. The initiative has developed momentum for applied climate research

and cleantech innovation in New Brunswick through four main program streams: Climate Impact Research Fund; Cleantech Startup Investment Fund; Corporate Cleantech Innovation Fund; and Climate Early Stage Commercialization Fund. Full outcomes of the first year of the initiatives will be available in 2022.

106 *Create the conditions for growth and job creation in the areas of clean technology, products and services related to climate change in all sectors such as housing, agriculture, forestry, manufacturing, energy efficiency, renewable energy, information technology and transportation.*

Status: Complete Lead: Opportunities New Brunswick

In 2021, the provincial government partnered with Green Economy Canada to respond to increased interest from local companies for guidance and support as they begin or accelerate their sustainability journey.

Green Economy New Brunswick now offers New Brunswick companies assistance in developing their GHG inventory, creating an action plan, and setting GHG reduction targets.

107 *Support a culture of innovation to pursue economic opportunities presented by our changing climate such as tools and approaches to adaptation developed in New Brunswick that are marketable elsewhere.*

Status: Complete Lead: Opportunities New Brunswick

Opportunities New Brunswick assists a variety of New Brunswick clean technology companies in developing and growing their export capabilities, from solar, battery, smart grid, and technology firms, all looking to provide solutions to the rest of the world.

Activities and trade missions have helped New Brunswick clean technology companies gain key insights regarding market opportunities and landscapes in markets such as New England, California, and Europe. Local clean tech companies have also benefitted from export readiness programs such as the Europe Market Development Program and the Asia Market Development Program.

108 *Work with the tourism and recreation sector to pursue new opportunities presented by our changing climate and to promote New Brunswick as a world class destination.*

Status: Complete Lead: Tourism, Heritage and Culture

In 2017–2018, a pilot initiative extended the operating seasons of all provincial parks and attractions through Thanksgiving Weekend. In 2019–2020, this initiative was continued in three provincial parks (Mactaquac, Mount Carleton and Sugarloaf). Park Resource Management (RM) Plans that enable economic, conservation and recreational outcomes have and continue to be developed. An RM plan for New River Beach was complete in 2019–2020. It considers the impacts of climate change and adaptation strategies. Interim RM Statements have been prepared for six (6) parks, including New River Beach. An additional 12 RM Statements are expected to be completed by 2024. All plans will consider the impact of climate change and include mitigation strategies.

Since 2019, the Department of Tourism, Heritage and Culture has partnered with the UNB Faculty of Forestry and Environmental Management students to study the impacts of Emerald Ash Borer and Eurasian Watermilfoil and develop an Integrated Management Plan for Mactaquac Provincial Park. Students have also helped assess the impacts of spring frosts on forest types at Mount Carleton. The Department also partnered with the Municipal Natural Assets Initiative to develop a natural toolbox for managing the impacts of coastal erosion and flooding at Parlee Beach.

These initiatives are helping provincial parks prepare for the impacts of Climate Change and begin to implement adaptation strategies to ensure that parks and habitats are protected in perpetuity.

109 *Take advantage of the large financial opportunities that exist through reducing energy costs and the potential for reinvesting the savings into New Brunswick's economy.*

Status: Complete Lead: All

The provincial government has successfully entered all publicly owned buildings into the ENERGY STAR® Portfolio Manager®, as reported in action 113. Energy Management Programs are being used in publicly owned buildings including schools and health care facilities. These programs will result in cost avoidance and GHG savings.

ACCOUNTABILITY AND REPORTING

110 *Continue to release annual progress reports on implementation of the measures identified in this action plan and in the annual work plans.*

Status: Complete Lead: Environment and Local Government

This will be the final Progress Report for the Action Plan "Transitioning to a Low Carbon Economy, New Brunswick's Climate Change Action Plan." A new climate change action plan is anticipated to be released in 2022. A progress report will continue to be released on an annual basis that provides updates on the implementation of a new Action Plan.

111 *Establish a standing committee of the legislative assembly on climate change to receive: a. annual reports on progress toward responding to climate change; b. annual reports on revenue, expenditures and performance of the climate change fund; and c. feedback from a multi-stakeholder climate advisory council on the climate fund and progress toward responding to climate change.*

Status: Complete Lead: Executive Council Office

In December 2019, an all-party Standing Committee of the legislative assembly was established. The Standing Committee on Climate Change and Environmental Stewardship's mandate specific to climate change is to receive updates on the implementation of the Climate Change Action plan through the Progress Report and to gather information on climate change by engaging with experts and stakeholders.

In January 2022, the provincial government launched a process for renewing its Climate Change Action Plan. The Committee heard presentations from the Climate Change Secretariat, subject matter experts from various sectors and First Nations representatives on topics related to climate change mitigation and adaptation.

112 *Use long-range energy and economic modelling to track, project and report on GHG emissions.*

Status: Complete Lead: Environment and Local Government

The New Brunswick Long-Range Energy Alternatives (LEAP) model has been developed and is annually updated to assist in tracking GHG emissions reductions from various climate change mitigation actions and policies.

113 *Develop and implement a government-wide energy management and reporting system by 2020 to ensure all departments are accountable for energy consumption and corresponding GHG emissions.*

Status: Complete Lead: Service New Brunswick

Over 800 Government-owned buildings are captured in the energy management system ENERGY STAR® Portfolio Manager® including schools, healthcare facilities, offices and garages. The energy management system captures data from energy sources such as electricity, natural gas, propane, wood, wood pellets, oil, and diesel used in our government-owned facilities. Compiling this energy information allows for reporting greenhouse gas emissions.

Through the collaborative effort of energy benchmarking, operational optimization, and previous year investments into energy efficiency initiatives from the Department of Transportation and Infrastructure Energy program in schools and hospitals, approximately 14,000 tonnes of GHGs have been reduced in healthcare and educational facilities in the 2020-2021 fiscal year.

114 *Encourage the management and reporting of GHG emissions by local governments and businesses.*

Status: Complete Lead: Environment and Local Government

The provincial government has supported many New Brunswick communities in developing local GHG reduction plans through the Environmental Trust Fund. These plans follow national program frameworks which emphasize the management and reporting of community and municipal GHG emissions. As of March 2022, 51 New Brunswick communities (~47 per cent) have developed GHG reduction plans which the Environmental Trust Fund has funded.

115 *Report on the number of communities with completed climate change vulnerability assessments and adaptation plans and on progress toward implementation.*

Status: Complete Lead: Environment and Local Government

As of March 31, 2022, a total of 64 municipalities, First Nations communities, and Regional Services Commissions (RSCs) have conducted a Climate Change Vulnerability Assessment of their full territory. These Vulnerability Assessments are a full-scale and in-depth analysis of the vulnerability of a community's critical infrastructure, natural infrastructure, emergency response, public safety services, transportation network, significant social and cultural assets and installations, and residents. Of the 64 entities, 56 municipalities, 3 First Nations communities, and 3 RSCs have completed formal climate change adaptation plans that were subsequently adopted by their municipal councils, band councils, and regional service commission boards.

Adaptation Plans can now be used as work plans to guide the implementation of adaptation measures designed to reduce specific vulnerabilities within each community, in an effort to reduce risk and build a community's overall resilience to the impacts of climate change.

116 *Conduct research and analysis along with academic experts and other jurisdictions to develop a means of measuring climate change adaptive capacity and reporting progress.*

Status: Complete Lead: Environment and Local Government

The Climate Change Secretariat (the Secretariat) collaborated with the academic and research community, as well as other jurisdictions to explore means of measuring climate change adaptive capacity and reporting its progress. In 2018, the Secretariat collaborated with University of New Brunswick graduate students to identify indicators for measuring climate change resilience in New Brunswick's highest risk municipalities. The report's objective was to develop a common template for measuring adaptation actions used to increase municipalities' resilience to climate change impacts.

In 2022 the Université de Moncton will conduct a complete scan of the implementation of adaptation measures identified in completed climate change adaptation plans, in an effort to understand the adaptation priorities of municipalities, practitioners, NGOs, and technical experts, with the objective of building collaborative adaptation capacity in New Brunswick.

FUNDING FOR CLIMATE CHANGE

117 *Establish and administer a climate change fund that will:*

- a. ensure proceeds from carbon pricing are invested back to consumers and economic sectors to reduce emissions (energy conservation and efficiency, and renewables) and climate change adaptation;
- b. ensure expenditures are done in accordance with government's climate action priorities; and
- c. consider all existing provincial and federal funds and opportunities to further leverage the climate fund.

Status: Complete Lead: Environment and Local Government

The New Brunswick Climate Change Fund was established under the Climate Change Act in 2018. In 2021-2022, the New Brunswick government invested \$36 million of carbon pricing revenue into the Fund. Projects funded thus far will help reduce GHG emissions while increasing New Brunswick's resilience to the impacts of climate change and fostering educational opportunities for the province's young people. Several approved projects allowed for additional federal funding opportunities to be leveraged.

118 *Make provisions for multi-year funding for climate-related initiatives.*

Status: Complete Lead: Environment and Local Government

The provincial government is providing annual funding for multi-year projects to many environmental groups through the Environmental Trust Fund (ETF), including climate-related initiatives. Over the last five years (2017-18 to 2021-22), 9 per cent of the ETF funding allocated through the application process was awarded to applicants who were successful in receiving funding in each of the last five years. An additional 47 per cent of the ETF funding allocated through the application process was awarded to applicants who were successful in receiving funding multiple times over the last five years.

National Greenhouse Gas Inventory Report Data for New Brunswick

INTRODUCTION

The following report contains information on New Brunswick’s greenhouse gas (GHG) emissions and trends. Data are presented by sector showing the trend of emissions and the percentage the sector contributes to the overall provincial GHG emissions. All data are based on the latest available information from Canada’s 2022 National Inventory Report, which includes GHG emissions up to and including 2020.

NEW BRUNSWICK’S GREENHOUSE GAS EMISSION TREND

New Brunswick’s annual GHG emissions from 1990 to 2020 are represented in Figure 1. In 2020, provincial GHG emissions from all sources were 12.4 megatonnes (Mt) of carbon dioxide equivalent (CO₂e), approximately two per cent of the Canadian total. This represents a 7.3 Mt reduction since 2005 or 37%. On a tonnes per capita basis, the 2020 figure of 12.4 Mt equates to 16 tonnes per capita emissions which is well below national average of 18 tonnes per capita (Figure 2). This reduction can be primarily attributed to closures of coal and oil-fired electricity generation plants; the incorporation of wind energy; restructuring in the forestry sector; investments in energy efficiency, switching to cleaner fuels in industry, buildings, transportation, environmentally responsible agricultural practices and waste management methane capture. Figure 3 shows a breakdown of those emissions by sector. The electricity generation sector is shown in a sub pie chart divided by usage type (residential, commercial and industrial).

Figure 1: New Brunswick Annual GHG Emissions

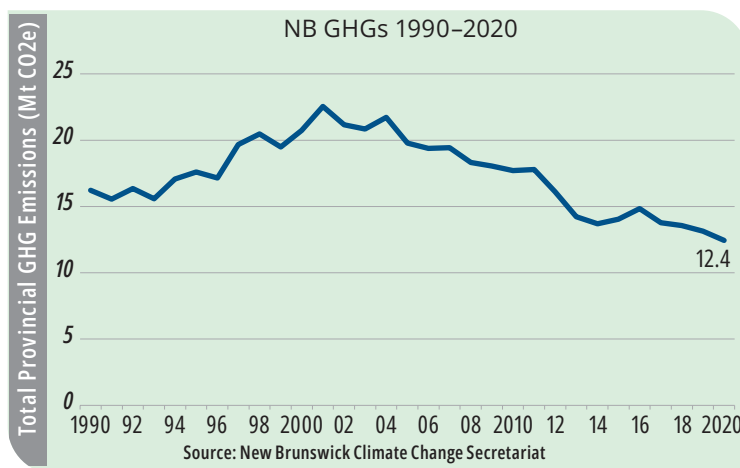


Figure 2: New Brunswick GHG per capita

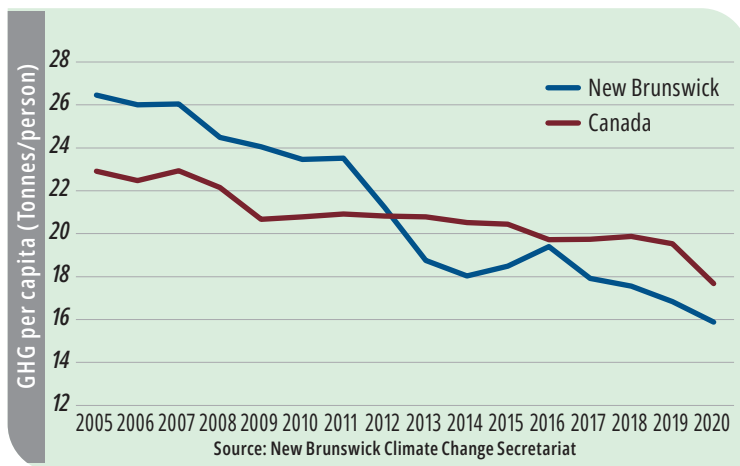
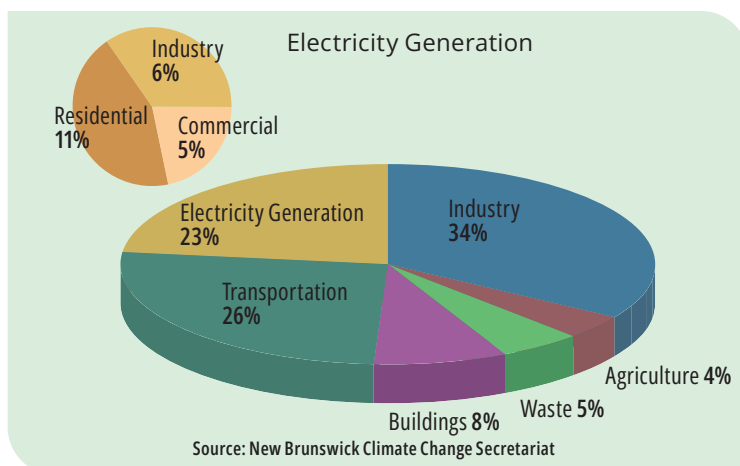


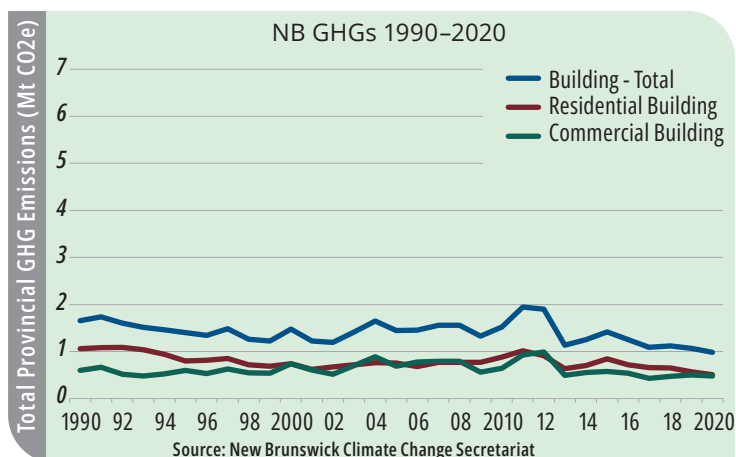
Figure 3: New Brunswick GHG Emissions in 2020 – 12.4 Mt



ENERGY EFFICIENCY AND RENEWABLE ENERGY — RESIDENTIAL AND COMMERCIAL BUILDINGS

The total GHG emissions for the building sector was 1.0 Mt in 2020 (Figure 4). Emissions attributed to residential and commercial buildings are from the direct combustion of natural gas, propane and furnace oil. Emissions related to the use of electricity in buildings are included in the electricity generation sector. The reduction in emissions from both residential and commercial buildings can be attributed to an increase in efficiency programs over time.

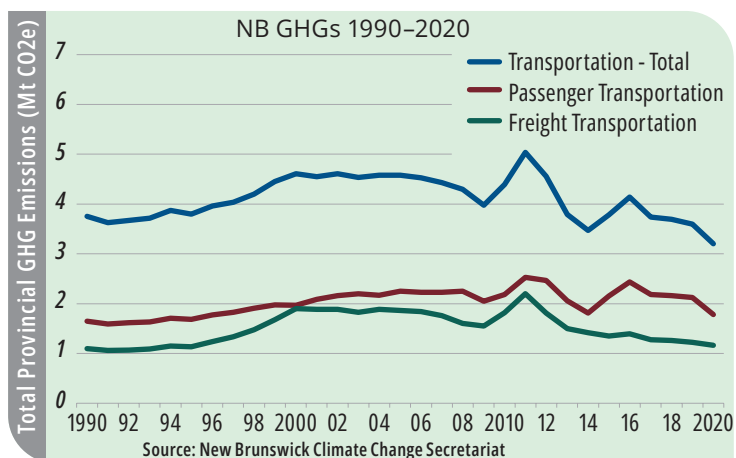
Figure 4: Buildings



TRANSPORTATION

The total emissions from the transportation sector was 3.2 Mt in 2020, which include passenger (1.8 Mt) and freight (1.2 Mt) (Figure 5). GHG emissions from Transportation has decreased by 1.8 Mt since it peaked in 2011. This decrease can be attributed to New Brunswickers purchasing newer and more fuel-efficient passenger, commercial and freight vehicles that must meet Canada’s ever-tightening vehicle emissions standards. While some New Brunswickers are purchasing low- or zero-emitting hybrid or electric vehicles, this has not yet significantly attributed to emission reductions, at this time.

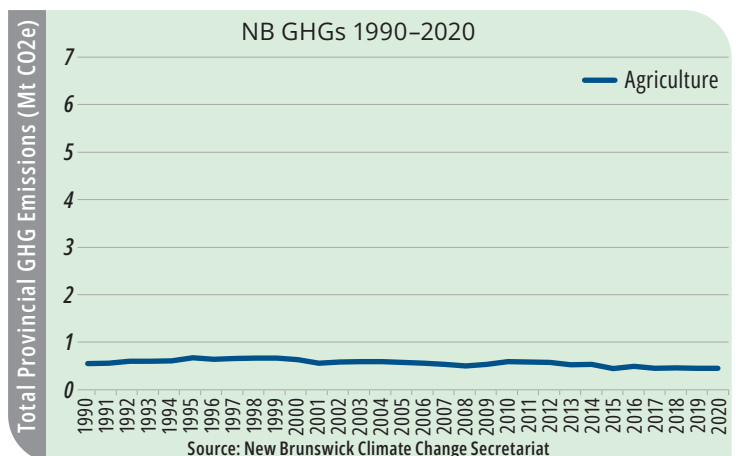
Figure 5: Transportation



AGRICULTURE

The total GHG emissions from the agriculture sector is 0.4 Mt in 2020 (Figure 6). Overall emissions from agriculture have declined slightly since 1990. The majority of the emissions from this sector are attributed to livestock manure.

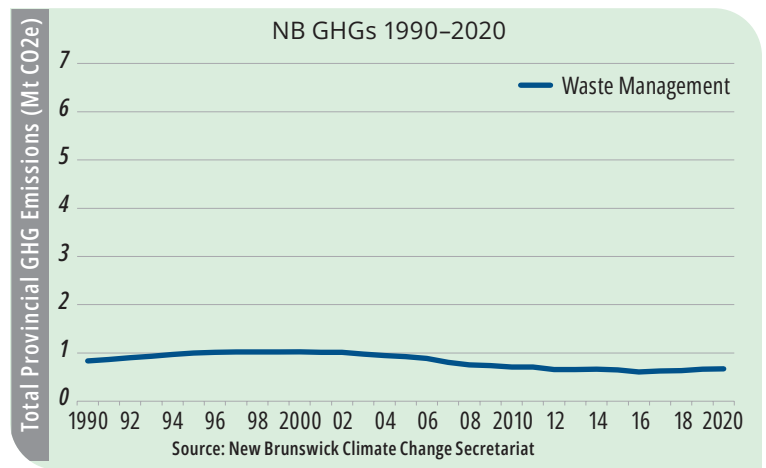
Figure 6: Agriculture



WASTE MANAGEMENT

The total GHG emissions from the waste management sector was 0.7 Mt in 2020 (Figure 7). There has been a slight decline in emissions since 2000 which is attributed to landfill gas management plans implemented by the local solid waste commissions. New Brunswick's six landfills are capturing methane (that would otherwise be emitted to the environment) from the decomposition of the organic waste and five are currently using this bio-energy to generate clean electricity, thereby further reducing electricity-derived GHG emissions.

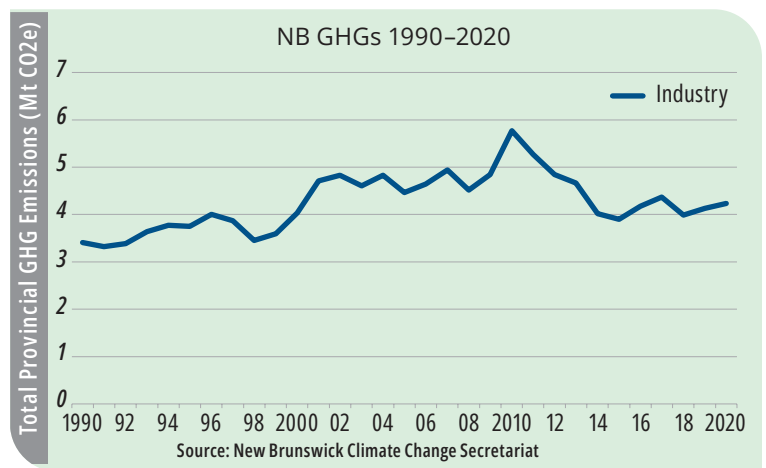
Figure 7: Waste Management



INDUSTRY

The total GHG emissions from large industrial facilities was 4.2 Mt in 2020. This is a decline of 1.6 Mt since it peaked in 2010 (Figure 8). Higher energy costs and remaining competitive in export markets have induced industry to implement energy efficiency measures, and more stringent environmental policies, resulting in decreased emissions in the industrial sector over time. Emissions related to the use of electricity in industrial facilities are included in the electricity generation sector.

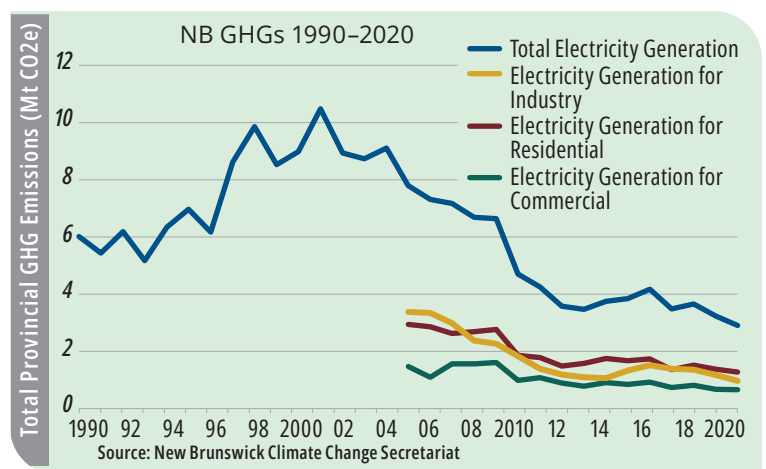
Figure 8: Industry



ELECTRICITY GENERATION

The GHG emissions from electricity generation was 2.9 Mt in 2020, which includes residential 1.3Mt, commercial 0.7 Mt and industrial 1.0 Mt (Figure 9). GHG emissions have been declining since 2001 due to expanded use of renewable energy sources such as hydro and wind, and the closure of the coal-fired power plant at Grand Lake and the oil-fired plant at Dalhousie Power.

Figure 9: Electricity Generation



GHG Impact from Implementation of the Climate Change Action PlanA

For this final progress report, the Climate Change Secretariat, in collaboration with its partner government departments and agencies, has evaluated all actions in the Climate Change Action Plan and selected suitable actions that have or will result in tangible and measurable GHG reductions from the implementation of energy efficiency, fuel switching and behavioural change. Two measures are provided: the first being the overall impact on provincial GHG emissions and the second being the impact of the GHG reductions on the specific sector. Estimates of GHG emissions impact are provided for both 2022 and 2030. The specific sectorial breakdown, based on the GHG impact scale in Table 1, are presented as follows:

Table 1. GHG Impact Scale

GHG Reduction Impacts	GHG Reduction Range (t GHGs)
Very High	1,000,000+
High	250,000-1,000,000
Medium	50,000-250,000
Modest	5,000-50,000
Minor	0-5,000

Building: Since the introduction of this Action Plan, the actions taken, including energy efficiency improvements to homes and buildings as well as greening and improving energy efficiency of government-owned buildings, have resulted in Modest GHG emission reductions in NB. Overall, this represents a High GHG reduction impact within the building sector in 2022. By 2030, these actions are expected to achieve Medium GHG reductions for NB, with an overall High GHG reduction impact within the sector.

Sector	2022		2030	
	GHG Reduction Impact on NB	GHG Reduction Impact on sector	GHG Reduction Impact on NB	GHG Reduction Impact on sector
Building	Modest	High	Medium	High

Transportation: Since the introduction of this Action Plan, the actions taken in launching a provincial Electric Vehicle incentive program to reduce transportation emissions, have resulted in Modest GHG emission reductions in NB. Overall, this represents a Modest GHG reduction impact within the transportation sector in 2022. By 2030, these actions are expected to achieve Medium GHG reductions for NB, with an overall High GHG reduction impact within the sector.

Sector	2022		2030	
	GHG Reduction Impact on NB	GHG Reduction Impact on sector	GHG Reduction Impact on NB	GHG Reduction Impact on sector
Transportation	Modest	Modest	Medium	High

Agriculture: Since the introduction of this Action Plan, the actions taken to promote Best Management Practices focusing on precision farming and nutrient management in NB farms have resulted in Minor GHG emission reductions for NB. Overall, this represents Modest GHG reductions within the agriculture sector in 2022. By 2030, these actions are expected to continue to achieve Minor GHG reductions for NB, with an overall Modest GHG reduction impact within the sector.

Sector	2022		2030	
	GHG Reduction Impact on NB	GHG Reduction Impact on sector	GHG Reduction Impact on NB	GHG Reduction Impact on sector
Agriculture	Minor	Modest	Minor	Modest

Waste: Since the introduction of this Action Plan, the actions taken to increase methane capture in NB landfills to reduce waste emissions have resulted in High GHG emission reductions in NB. Overall, this represents a Very High GHG reduction impact within the waste sector in 2022. By 2030, these actions are expected to achieve High GHG reductions for NB, with an overall Very High GHG reduction impact within the sector.

Sector	2022		2030	
	GHG Reduction Impact on NB	GHG Reduction Impact on sector	GHG Reduction Impact on NB	GHG Reduction Impact on sector
Waste	High	Very High	High	Very High

Industry: Since the introduction of this Action Plan, the actions taken to implement a provincial Output-Based Pricing System to reduce industrial emissions have resulted in Modest GHG emission reductions in NB. Overall, this represents a Medium GHG reduction impact within the industrial sector in 2022. By 2030, these actions are expected to achieve High GHG reductions for NB, with an overall Very High GHG reduction impact within the sector.

Sector	2022		2030	
	GHG Reduction Impact on NB	GHG Reduction Impact on sector	GHG Reduction Impact on NB	GHG Reduction Impact on sector
Industry	Modest	Medium	High	Very High

Electricity: Since the introduction of this Action Plan, the actions taken, including supporting the uptake of renewables, expanding energy efficiency program to support low-income, and reducing our dependency on fossil-fueled generation, to reduce electricity emissions have resulted in High GHG emission reductions in NB. Overall, this represents a Very High GHG reduction impact within the electricity sector in 2022. By 2030, these actions are expected to achieve Very High GHG reductions for NB, with an overall Very High GHG reduction impact within the sector.

Sector	2022		2030	
	GHG Reduction Impact on NB	GHG Reduction Impact on sector	GHG Reduction Impact on NB	GHG Reduction Impact on sector
Electricity	High	Very High	Very High	Very High

NEW BRUNSWICK'S GHG EMISSION INTENSITY

Historically, GHG emissions have been strongly correlated with economic progress, meaning that the stronger the economy, the greater the GHG emissions (Figure 1). However, this relationship no longer holds true for many regions including New Brunswick, where we have achieved economic growth while reducing GHG emissions. Since the introduction of New Brunswick's first Climate Change Action Plan in 2007 and continuing through the current CCAP, New Brunswick has accelerated the decoupling of economic growth from GHG emissions. Decoupling can also be expressed as GHG emission intensity (GHG/GDP). Figure 2 shows New Brunswick and Canada's GHG intensity over the period from 2005 to 2020 where New Brunswick's GHG intensity has reduced to 0.41 per \$1000 GDP in 2020. This represents a 41% reduction since 2005, which is considerably larger than the national average of 26%.

Figure 1: New Brunswick's Transitioning to a Low-Carbon Economy

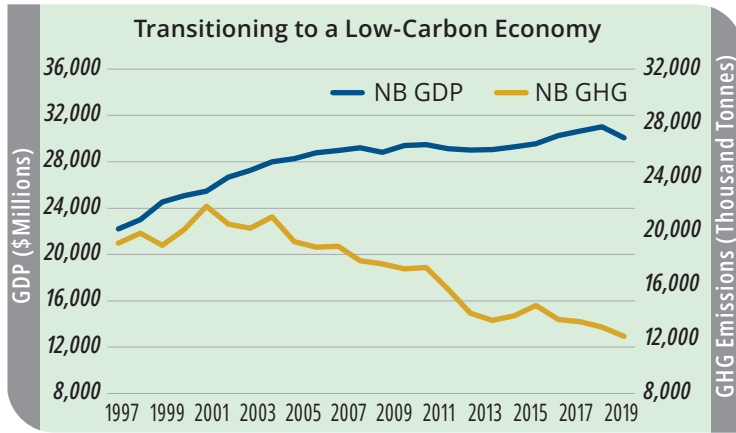


Figure 2: GHG Emission Intensity

