

TRANSITIONING TO A LOW-CARBON ECONOMY – NEW BRUNSWICK’S CLIMATE CHANGE ACTION PLAN PROGRESS REPORT 2020: DETAILED SUMMARY

Since its release in December 2016, Government has been working to implement Transitioning to a Low-Carbon Economy, New Brunswick’s Climate Change Action Plan. [The 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, current status and a description of their progress. Action statuses include Complete, In Progress or Future Start. Actions identified as Complete are those that were initiated, and the objectives have been attained. Those identified as In Progress are actions that were initiated and are moving towards completion. Those identified as Future Start are actions that have not yet begun. Also included in this report is 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: Complete **Lead: Executive Council Office**

A new all-party Standing Committee on Climate Change and Environmental Stewardship was created and will provide additional governance and oversight with respect to the implementation of the Plan. Climate change is a focus of the government’s priorities. This will help 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 enable the regulation of emissions from large industrial emitters were passed in March 2020.

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: Future Start **Lead: Executive Council Office**

The provincial government is currently updating the Procedures Manual for MECs. Part of this process will include revisiting existing MEC templates at which point a climate lens could be provided. The Department of Environment and Local Government will continue to work with Executive Council Office to support as needed.

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: Complete Lead: Executive Council Office

The provincial government included a commitment to climate change in mandate letters to RPC Science and Engineering, Opportunities New Brunswick, NB Power, New Brunswick Community College /Collège communautaire du Nouveau-Brunswick, and the NB Liquor Corporation.

While mandate letters for ministers have not been released, the provincial government's priorities include a focus on climate change. This will help to ensure that the necessary focus is placed on climate change action.

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: In Progress Lead: All

This action is at the core of the provincial government's response to climate change. By implementing the actions in the Climate Change Action Plan, the provincial government is moving forward on this 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: In Progress Lead: Environment and Local Government

- a. New Brunswick's green house gas (GHG) emissions are reported annually by Environment and Climate Change Canada. In February 2020 the Climate Change Secretariat (the Secretariat) and other provincial government departments provided updates on GHG emissions and adaptation action to the Standing Committee on Climate Change and Environmental Stewardship.
- b. At this time a multi-stakeholder committee has not been established.
- c. The Secretariat continues to engage with a broad group of stakeholders and First Nations to inform government's climate action response. The Climate Change Secretariat has strong working relationship across all levels of government.
- d. Climate data is regularly updated and shared with stakeholders. The Secretariat regularly attends public information sessions to share information about climate change.
- e. The Secretariat has a strong network within the research community and works with its 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 Climate Change Secretariat has a dedicated staff resource focused on outreach, education and engagement.

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: In Progress Lead: Environment and Local Government

The provincial government has initiated work on a Communications Strategy to help inform the development of tools and resources that would educate New Brunswickers about the causes of climate change and identify opportunities for New Brunswickers to participate in solutions. This would include updates to the Climate Change Secretariat website and the availability of up-to-date New Brunswick climate information.

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: In Progress Lead: Environment and Local Government

The provincial government has been engaged with the federal government and Atlantic provinces to discuss the creation of an Atlantic Climate Data Hub. The Hub would be responsible for sharing climate information and engaging with stakeholders. Currently, the *Atlantic Canada Adaptations Solutions Association* website is used by the Atlantic provinces to post relevant climate information.

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

Status: In Progress 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.

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 has also created and launched, a collaborative SharePoint which organises the complex topic of global climate change around three pillars: causes, effects and solutions.

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

In January 2020, 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 identify strategies to enhance discussions about climate change in the classroom.

The Francophone sector organized a youth climate change consultation committee made up of students. The students were invited to share best practices that could potentially be utilized in schools throughout the province. This process greatly encourages youth leadership and engagement.

The provincial government, in partnership with The Gaia Project, a non-profit charitable organization, has committed to developing educational resources and activities that will be distributed to teachers across the province for grades K-5.

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

Status: In Progress 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 will help support projects aimed at addressing complex environmental issues that impact the province.

Additionally, the provincial government funds multiple climate research initiatives through the Environmental Trust Fund aimed at further informing adaptation measures that can be implemented to reduce the vulnerabilities of New Brunswick sectors to the impacts of climate change.

Capacity-building

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: In Progress Lead: Post-Secondary Education Training and Labour

Collège communautaire du Nouveau-Brunswick (CCNB) has 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.

New Brunswick Community College (NBCC) has 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 with a focus on renewable resources. Students learn how to analyze energy consumption, optimize efficiency, and reduce costs and damages.

In 2019–2020, the ETF 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: In Progress Lead: Environment and Local Government

The provincial government actively facilitates linkages between government, researchers, NGOs, local communities and First Nations to create partnerships and increase local capacity in adapting to the impacts of climate change. The provincial government's affiliation with the New Brunswick Environmental Network allows for the delivery of annual conferences and workshops aimed at convening the various climate change stakeholders within the province to disseminate findings, deliver public awareness and education, respond to the needs of various sectors, and identify future initiatives that will collectively build resilience to climate change.

The Climate Change Secretariat works closely with researchers to develop tools, data, and guidance that can be used across several sectors to build resiliency, especially in infrastructure, improve communication strategies, and support education and awareness initiatives.

Carbon-neutral government

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

Status: In Progress **Lead: Transportation and Infrastructure**

A preliminary study was completed in March 2020 that explores the topic of carbon neutral government and identifies the overarching framework and approach for achieving carbon neutrality by 2030.

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

Status: In Progress **Lead: Environment and Local Government**

In September 2019, the provincial government commissioned a study to identify and evaluate the compliance offset supply potential available in New Brunswick. A draft report was completed and is under review. The provincial government intends to engage targeted stakeholders on the results of the study and incorporate feedback into a final report in 2020.

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

Status: Future Start **Lead: Environment and Local Government**

Current work is focused on the provincial government. Engagement with municipal and other public institutions will occur at an appropriate time in the future.

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: In Progress **Lead: Transportation and Infrastructure**

In April 2010, the Green Building Policy for New Construction and Major Renovation Projects was added to the provincial government's Administration Manual. The provincial government is currently reviewing revisions to its Green Building Policy with a goal to reflect the current state of technology and environmental standards as well as align with applicable building codes.

The provincial government continues to demonstrate leadership in addressing climate change by currently designing and constructing the new Hanwell and Moncton schools to the LEED v4.1 rating system by the Canada Green Building Council.

Constructed in 2017, the King Street Elementary School in Miramichi is the first LEED BD+C: Schools v4 project certified in Canada and the first LEED v4 certification for New Brunswick.

Major additions and renovations at the following hospitals are being designed and constructed using Green Globes v1: Chaleur Regional, Bathurst and the Dumont in Moncton and Green Globes v2: Dr. Everett Chalmers, Moncton Maternal Newborn, Moncton CCU and Saint John Hospital.

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

Status: In Progress **Lead: Transportation and Infrastructure**

The provincial government continues to implement energy efficiency measures under the Department of Transportation and Infrastructure (DTI) Energy Retrofit Program. Working closely with Service New Brunswick Energy Managers, opportunities are identified offering cost avoidance and GHG reductions. Projects are designed, constructed and monitored to verify performance.

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) have contributed to a GHG reduction of 31,410 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.

Radio Communications are now using solar energy to power the majority of remote sites, replacing propane/diesel powered generation.

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

Status: In Progress **Lead: Transportation and Infrastructure**

Accessibility to public transit, walking and cycling will continue to be a consideration in identifying locations of 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 of 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: In Progress **Lead: Transportation and Infrastructure**

Through the lifecycle evaluation process, new builds are being constructed using natural gas or wood pellet heating systems rather than fuel oil.

Where possible, fuel conversions are being undertaken taken in favor 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 24 months, 14 buildings have been refitted or upgraded, contributing to a reduction of 3,600 tonnes of GHG emissions per year.

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

Status: In Progress **Lead: Transportation and Infrastructure**

This complements Action 113 and is undertaken collaboratively with Service New Brunswick.

The provincial government is implementing and will maintain a government-wide energy management and reporting system using the ENERGY STAR® Portfolio Manager®.

The system allows users to understand how their building's energy performance measures against similar buildings nationwide with metrics like energy consumption benchmarking, GHG emissions and a 1–100 ENERGY STAR® score.

All 297 schools and 9 health care facilities were entered into the ENERGY STAR® Portfolio system as of March 2020. It's expected that all health care facilities will be included by March 2021. Other provincially owned facilities will also be added.

New construction and major building renovations undergo energy modeling as part of the design process allowing a benchmark for the buildings performance to be established where historical data is unavailable. Energy consumption data will be 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).

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: In Progress **Lead: Transportation and Infrastructure**

The Wood in Construction of Public Buildings policy requires the use of wood in building structures when it is a cost competitive and practical building material. Wood has been used in the framing of modular classrooms and nursing homes as well as the timber framed lodge at Mount Carleton.

Work is being undertaken to identify and evaluate wood as a construction material in transportation structures. 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: In Progress **Lead: Transportation and Infrastructure**

Work is ongoing to develop a green transportation policy.

The provincial government continues to take action to reduce GHG emissions from transportation.

Vehicle Management Agency (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 vehicles, to help ensure environmentally responsible driving practices

VMA researches the most fuel-efficient vehicles and the provincial government requires that its executive vehicles will be in the top 10% of most fuel-efficient vehicles in their class. The executive fleet of 45 vehicles includes 30 Hybrids and 1 electric vehicle.

Two electric school buses were added in 2017–2018, 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.

The provincial government has worked closely with the federal government and other provinces and territories to develop a Canada-wide strategy for zero-emission vehicles that will help accelerate the deployment and uptake of these vehicles.

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: In Progress **Lead: Service New Brunswick**

The provincial government is exploring the topic of green procurement. Research, including best practice and jurisdictional reviews have been completed. A consultant has been engaged to prepare a report and implementation options that will be considered by government to determine next steps.

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: In Progress Lead: Environment and Local Government

New Brunswick is 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.

The provincial government co-chairs the Climate Adaptation Working Group under the NEG-ECP. The Working Group is tasked with proposing the best and most appropriate adaptation measures that can be used regionally to solve common climate change impacts occurring across participating jurisdictions.

The provincial government continues to engage actively with neighbouring jurisdictions on the topic of climate change through the Gulf of Maine Council. 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 the planning of two symposiums held in St. Andrews, NB and Portland, Maine.

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: In Progress Lead: Environment and Local Government

Local Governments and Regional Service Commissions have been incorporating where possible climate change adaptation and mitigation measures into local land use plans.

Some local governments are currently including smart growth, infill development and brownfield development into their practices.

The provincial government will continue to encourage the incorporation of climate change into local plans and provide land use planners with information about climate change adaptation and mitigation.

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: In Progress 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.

Beginning in 2017, the federal government established the Coordinating Committee of Experts under the Pan-Canadian Framework. The provincial government 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 Chapter.

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: In Progress Lead: Environment and Local Government

The provincial government continues to collaborate with the federal government and other Atlantic Provinces as members of the Atlantic Climate Adaptation Solutions Association to pursue common initiatives aimed at building collective resiliency to climate.

The provincial government is also partnering with the Atlantic provinces and Environment and Climate Change Canada to explore the establishment of an Atlantic Climate Hub that would be responsible for sharing up-to-date climate information and providing outreach and engagement with stakeholders.

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

Status: In Progress Lead: Environment and Local Government

The provincial government continues to play an important role in Natural Resources Canada's (NRCAN) Adaptation Platform and other Federal-Provincial-Territorial committees and working groups such as 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, a national forum that brings together key groups in Canada to collaborate on climate change adaptation priorities. The fall session allowed New Brunswick to profile and highlight local adaptation initiatives.

Participation in these working groups and committees allows the provincial government to contribute and learn from the latest climate science, best practices, funding sources 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: In Progress Lead: Environment and Local Government

In 2019, the provincial and federal government partnered to support three projects under Natural Resource Canada's Building Regional Adaptation Capacity and Expertise (BRACE) program. The projects include:

- 1) Developing climate change educational material for engineers;
- 2) Establishing a natural Infrastructure Community of Practice for Planners, Engineers, Municipalities and NGOs, and
- 3) Providing training for forestry professionals to assist woodlot owners in developing climate-adjusted forest management plans.

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: In Progress Lead: Environment and Local Government

The provincial government continues an on-going dialogue with First Nations representatives around climate change issues and developing the capacity to address priority action items as they relate to climate change.

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 from the Action Plan were established as part of the Climate Change Act, which was proclaimed in 2018.

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 provincial carbon tax on 22 different fuels. Provincial taxes on gasoline and diesel were reduced to help protect consumers resulting in an effective incremental price of 2c/l on gasoline and diesel. Emissions from New Brunswick's large emitters are currently subject to carbon pricing under the Federal Output-Based Pricing System (OBPS). However, the provincial government is currently in the process of developing a New Brunswick OBPS which will drive an incremental reduction in GHG intensity of 10% by 2030 for New Brunswick's industrial emitters. As well, for electricity generation, the system will drive incremental reductions in GHG emissions while ensuring low and stable electricity rates.

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 Builder's 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;
- g. performance auditing and reporting periodically; and
- h. legislative and regulatory authority to enable energy efficiency delivery agents to meet the above conditions.
- i. legislative and regulatory authority to enable energy efficiency delivery agents to meet the above conditions.

Status: In Progress Lead: Natural Resources and Energy Development

The estimated energy savings since April 2017 to March 31, 2020 is 167 Gigawatt hours with an approximate reduction of 100,000 tonnes of GHG emissions per year, an equivalent of taking 30,000 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.
- b. The federal government's Low Carbon Economy Fund is providing more than \$50 million in funding between 2017 to 2022 that extends NB Power's energy efficiency programs beyond electricity to all fuel types including oil, natural gas and propane. From 2017 to the end of March 2020 the total investment from the Fund is approximately \$58 million.
- 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. The Program continues to run and has retrofitted over 1000 homes since 2017. Social Development and NB Power made recent changes to this program to reduce the cost per home. This change is expected to allow 700–800 homes to be completed over the next two years.
- d. Since 2017, 13,500 homeowners have entered the residential programs, over 1000 business have registered for commercial programs and 123 projects have been enrolled by industrial companies.

- e. Since April 2017, NB Power has hosted over 16 formal workshops or training courses in the commercial and industrial sectors. This is in addition to informal one-on-one capacity building carried out with customers on site.
- f. Since April 2017, six new programs were launched in residential, commercial and industrial sectors;
 - the Total Home Energy Savings Program for energy retrofits in existing homes,
 - the New Home Construction Program,
 - the Community Outreach Program for not-for-profit organizations,
 - Small Business Lighting Program, • Small and Medium Industrial Program, and
 - Large Industrial Program.

The above programs combined with the programs already in existence; Low Income Energy Savings Program, Smart Habits In-Store Rebates, Home Energy Report and Commercial Building Retrofit Program, provide a strong base of programming and incentives for all sectors.

The combined efforts of delivering new customer programs with increased marketing and community engagement increased awareness of programs from 43% in July of 2017 to 60% in July 2018 and continues to drive strong participation and uptake in all programs. In April 2018 with the Low Carbon Economy Funding, these programs were expanded to include fuels other than electricity.

- 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 total numbers of clean energy projects since program launch.

Total Home Energy Savings Program:

- 11 households have installed solar;
- 42 ground source heat pump installations;
- 54 biomass stove retrofits.

Commercial Building Retrofit Program:

- 18 ground source heat pump installations;
- 1 ground source heat pump water heater;
- 2 photovoltaic arrays assessed

Industrial Energy Savings Program:

- 1 Solar study confirmed

- h. NB Power’s efficiency programs undergo third party evaluation on a regular basis. Program evaluation and future plans are filed annually with the Energy and Utilities Board. In addition, NB Power provides quarterly updates to the Department of Natural Resources and Energy Development on results and program activities.

- i. The DSM potential study referenced in (a) will guide the development of any legislative or regulatory changes.

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

Status: In Progress Lead: Transportation and Infrastructure

This action is linked to Actions 17 and 19.

The budget for Energy Retrofit and Renewable Energy programs increased from \$10.84 million in 2017–2018 to \$16.5 million in 2018–2019, a 52% increase.

The provincial government reduced its capital budget in 2019–2020. The budget for government energy efficiency programs were reduced to \$5.25 million in 2019–2020.

The provincial government will continue to prioritize energy efficiency projects with the largest impacts.

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: Future Start Lead: Environment and Local Government

A very preliminary examination of the Property-Assessed Clean Energy (PACE) Program has been initiated to examine its potential application to New Brunswick.

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. With respect to 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% 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: In Progress **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

The Advanced Metering Infrastructure (AMI) is an infrastructure component needed to enable significant aspects of Smart Grid. NB Power's AMI proposal was presented to the Energy and Utilities Board in the winter of 2020.

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 which will select 500 homes to test different technologies, such as smart thermostats, solar rooftop generation, smart water heaters, and in-home battery storage, will expedite the adoption and grid integration of provincial and customer-owned renewable energy production and storage technologies.

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: In Progress **Lead: Justice and Public Safety**

The *Building Code Administration Act* was introduced on March 17, 2020 but is subject to proclamation. The development of supporting regulations and adoption of both the National Energy Code for Buildings and the National Building Code are planned for the 2021 construction season.

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

Status: Future Start **Lead: Justice and Public Safety**

Currently there is no mechanism to require energy labelling.

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: In Progress **Lead: Environment and Local Government**

The provincial government is currently pursuing an Equivalency Agreement with the federal Government to allow the *Federal Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations* to stand down and be replaced by a New Brunswick regulation. The regulation will require the equivalent GHG as per phasing out coal by 2030, while allowing the Belledune Generating Station to continue to operate under a modified operating regime thus avoiding significant costs to ratepayers.

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

Status: In Progress **Lead: Environment and Local Government**

Emissions from New Brunswick's electricity sector are currently regulated by the federal government under the Federal Output-Based Pricing System (OBPS). However, the provincial government is currently in the process of developing a New Brunswick OBPS as a means of regulating emissions from large industrial emitters in the province, including electricity generation. Amendments to the Climate Change Act were made in March 2020 to enable the New Brunswick OBPS.

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: In Progress **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. In 2019–20 about 6 Terawatt-hours of renewable sourced electricity was used to serve in-province electricity needs (about 44%).

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

Status: In Progress **Lead: Natural Resources and Energy Development**

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.

In 2019–20, net-metering generation increased from 0.1 Gigawatt-hours (GWh) to 2.3 GWh, and Embedded generation increased from 32.4 GWh to 42 GWh.

The provincial government has been exploring ways to remove barriers 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: In Progress **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. The projects, once completed, are expected to generate about 300 gigawatt hours annually, which represents about 2 per cent of New Brunswickers electricity needs.

NB Power has entered into power purchase agreements with 4 community energy project partnerships totaling 78 MW. Projects are at various phases of development, (e.g. EA review, construction, and commercial operation).

As most projects are still under construction, the program review will begin in 2021, to identify lessons learned and potential next steps.

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**

Enhancements to the provincial government's Small Business Investor Tax Credit now allow individuals investing in eligible Community Economic Development Corporations (CEDC) a tax credit of 50%, or up to \$125,000, on an investment of up to \$250,000. This is more generous than in neighboring 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: In Progress **Lead: Natural Resources and Energy Development**

Currently in New Brunswick (NB) there are over 473 electric vehicles.

- Investments in electric vehicle charging infrastructure has allowed NB to become the first fully connected province in Canada, with a fast-charging network for electric vehicles spanning over 27 communities. These investments were made by Natural Resources Canada, NB Power, the provincial government and private entities.

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: In Progress **Lead: Natural Resources and Energy Development**

The provincial government's focus has been placed on opportunities for establishing the infrastructure to support increased numbers of electric vehicles in the province.

There is currently a \$2500 to \$5000 federal electric vehicle (EV) purchase incentive available. Plugin hybrids typically receive \$2500, while Battery EV receive \$5000. Since the federal incentive became available in May of 2019, new EV registrations in New Brunswick have been on average 63 vehicles per quarter, indicating New Brunswick has seen a 325% increase in newly registered EV for the first fiscal year of the purchase incentive program.

There are currently 174 Level 2 chargers, 38 Level 3 DC Fast Chargers and 48 Tesla Super Chargers in the province.

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: In Progress **Lead: Transportation and Infrastructure**

In 2017, the provincial government established an interdepartmental rail committee to investigate opportunities to better utilize rail as a cost-effective, eco-friendly mode of transportation in northeastern NB. The committee produced a report which contains options for shifting freight from truck to rail.

The Department of Transportation and Infrastructure is partnering with Opportunities New Brunswick, New Brunswick Business Council, Atlantic Provinces Trucking Association as well as ports and airports to improve the efficiency of the transportation network which includes utilizing more eco-friendly modes of transportation. For example, the provincial government has advocated strongly for the 40 km un-twinning stretch on route 185 in Quebec to be accelerated. This will reduce the need to decouple long combination vehicles at the border and use two tractors over the un-twinning section.

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: In Progress Lead: Natural Resources and Energy Development/Transportation and Infrastructure

Wide base single tires (WBSTs) are a potential replacement for dual tires on commercial vehicles leading to improved fuel economy. Use is issued by permit in New Brunswick. The provincial government will be seeking approval to amend the *Vehicle Dimensions and Mass regulation* to include WBSTs which would remove the requirement for a permit.

The provincial government is participating on a Federal-Provincial-Territorial task force on heavy duty vehicles (HDVs) retrofits. Their mandate is to look at the existing fleet of HDVs, exploring options for converting fleets to different fuel sources, and looking 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 thorough study was completed and determined it is not currently 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: In Progress Lead: Environment and Local Government

The provincial government has been working on a Public Transportation Innovation initiative in cooperation with the Kent Regional Service Commission (RSC) exploring ways to potentially develop public transportation options for the Kent region. The Kent RSC is currently taking the lead on further developing the options.

The provincial government continues to explore options for alternative forms of transportation. Staff have participated in an array of working groups, symposiums and seminars throughout the province.

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

Status: In Progress Lead: Transportation and Infrastructure

In 2017–2018 the provincial government worked closely with communities and a private partner to establish a twice daily round trip public transportation system between Saint John and St. Stephen as a two-year pilot. The results from the pilot did not justify further continuation.

The provincial government has been working on a public transportation innovation initiative in cooperation with the Kent Regional Service Commission (RSC) exploring ways to potentially develop public transportation options for the Kent region.

The department of Transportation and Infrastructure has co-chaired a Federal-Provincial-Territorial committee that has identified options for long term sustainability of intercity bus service within Canada

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 are 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: In Progress **Lead: Environment and Local Government**

Emissions from New Brunswick's large emitters are currently regulated under the federal Output-Based Pricing System (OBPS). However, the provincial government is currently in the process of developing a New Brunswick OBPS as a means of regulating emissions from large industrial emitters in the province, including electricity generation. Amendments to the *Climate Change Act* were made in March 2020 to enable the New Brunswick OBPS.

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: Future Start **Lead: Environment and Local Government**

The provincial government's current focus has been on establishing the New Brunswick Output-Based Pricing System (OBPS) for regulating GHGs from large industrial emitters. A review will be undertaken in the future to determine the value of this action considering the requirements around the OBPS for reporting and verification.

Reduced GHG emissions from waste

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

Status: In Progress **Lead: Environment and Local Government**

In October 2019, the provincial government announced its intentions to develop a Packaging and Printed Paper 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. The Department of Environment and Local Government will lead consultation with key stakeholders and broader engagement to develop the framework for the program.

A Solid Waste Study is being undertaken by the provincial government. The study is an independent review of the solid waste management service model that has been in operation for the last 30 years. The study will be reviewed for any possible recommendations on diverting organics.

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

Status: In Progress **Lead: Environment and Local Government**

All six New Brunswick landfills continue to operate landfill gas management systems. Five landfills are producing electricity from methane gas capture.

The provincial government will continue to support further improvements on an ongoing basis

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: In Progress **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 present, the CAP program has provided funding for greenhouse gas mitigation. Eighty-two projects received 42 per cent of the program budget. Projects included land drainage, precision farming, nutrient management planning, energy audits and upgrades and renewable energy systems.

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: In Progress

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 funding is available to assist producers to purchase no-till planting equipment, plant windbreaks, restore wetlands and vegetate riparian zones.

The provincial government is taking both a strategic and an operational approach to mitigating climate change through forest management.

The provincial government has strategically incorporated a process to estimate carbon supply into stand level growth and yield development. This resulted in the ability to estimate current forest carbon stocks and forecast those stocks 80 years into the future. This forecasting ability allows for quantifying trade-offs of forest carbon stocks with other values when considering various forest strategy scenarios.

The provincial government is currently working to understand operationally the role forest management has on 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 to protect forest habitats, forest carbon sequestration, and forest-dependent economy from the impacts of widespread tree mortality.

The Department of Natural Resources and Energy Development has annually undertaken spruce budworm control and has monitored budworm populations and their impacts on the forest. Over all, 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: In Progress **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. Support material is available through the WAWA review sheet including avoidance and minimization justification and online information guidance documents related to importance of wetlands and watercourse and their buffers.

The provincial government released an updated version of the WAWA Reference Map on in January 2020 and held information sessions with stakeholders and the public throughout the province. Wetlands are an important natural carbon sink.

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: In Progress **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 GHG offsets framework. The framework is intended to provide guidance to jurisdictions that are developing or operating an offset program.

In September 2019, the provincial government commissioned a study to identify and evaluate the compliance offset supply potential available in New Brunswick. A draft report was completed and is under review. The provincial government intends to engage targeted stakeholders on the results of the study and incorporate feedback into a final Report in 2020.

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: In Progress **Lead: Justice and Public Safety**

When the 2015 National Building Code is adopted it will allow for the construction of wood-framed buildings of up to 6 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: In Progress **Lead: Environment and Local Government**

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 (ELG) 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.

The provincial government established a provincial Healthy Built Environment Working Group. A goal of the group is to promote active transportation and healthy living. This lens is used by ELG when reviewing land-use plans.

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

Status: In Progress Lead: Environment and Local Government

The provincial government promotes the use of natural infrastructure to, manage stormwater in various settings, protect infrastructure and communities from storm surge, reduce shoreline erosion and sediment loading in watercourses, enhance treatment of potable water sources, etc.

The Environmental Trust Fund supported projects in 2017–18 and 2018–19 that helped build better understanding around transportation and land-use planning and associated GHG emissions.

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

Status: In Progress Lead: Transportation and Infrastructure

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

A climate lens and risk assessment are applied to significant infrastructure projects that are cost shared with the federal government. This federal requirement is to ensure that actions are taken to reduce GHG emissions.

The provincial government Green Building Policy includes a lens on reducing GHGs to ensure this is considered as part of long-term capital planning.

The Department of Transportation and Infrastructure continues to improve its asset management modeling for roads to ensure they are in good conditions which leads to better fuel economy and reduction in GHGs from commercial and passenger vehicle traffic.

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

The provincial government's *Community Planning Act* and *Local Governance Act* were modernized and proclaimed on January 1, 2018. Each new Act includes the ability to respond to the needs of local governments and their priorities for climate adaptation and mitigation.

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: In Progress Lead: Environment and Local Government

The provincial government has an active research network and a number of leading climate change experts that are actively engaged in climate change research.

An analysis is currently underway to summarize the work to date. This will allow government to better understand gaps and help inform priority areas for future research and funding. The provincial government will continue to fund climate related research through the Environmental Trust Fund.

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: In Progress Lead: Environment and Local Government

The provincial government engages with a broad network of stakeholders and partners related to tracking changes in the physical environment to be used in future climate modelling. Examples include:

- Sea-Level Rise and Flooding Scenarios prepared by R.J. Daigle Enviro Ltd in 2010 have been updated and used to support conversations with communities and adaptation planning.
- The Université de Moncton's work on tracking temperatures in downtown Moncton and rural areas outside of city core to show potential impacts of extreme hot weather on public health.
- The Whale and Seabird Research Station on Grand Manan Island tracks the warming of Bay of Fundy temperatures and marine species response to warmer coastal waters.

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 acquired the most up to date climate change projections datasets and maps for the historical observation period of 1980–2010 and the future periods 2020, 2050 and 2080. Twenty-nine different climate variables are available. These data are essential to conducting the risk and vulnerability assessments required for completing Climate Change Adaptation Plans for communities, municipalities, sectors, and government departments. The provincial government will continue to update this information as needed.

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 has acquired Publicly available LiDAR data for the full province. Among other things, this information can be used in planning for future climate conditions and will be useful to stakeholders engaged in the adaptation planning process. The new mapping can be found on the GeoNB website.

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: In Progress Lead: Environment and Local Government

The provincial government continues to support the development of analytical and educational tools that allow communities, infrastructure owners and the natural resources sector to better consider the impacts of climate change in decision-making.

Since 2017, three reference documents were developed and continue to be updated. These include a report on updated sea-level rise and flooding estimate for the New Brunswick coastline (Daigle 2017), a guidebook for community climate change adaptation planning and a report on future climate scenarios for New Brunswick. Other tools and resources continue to be developed by stakeholders and supported through programs such as the 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: In Progress Lead: Environment and Local Government

The provincial government continues to promote and use 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.

The provincial government released an updated version of the Watercourse and Wetland Alteration (WAWA) Reference Map on January 1, 2020.

The WAWA permit review sheet includes avoidance and minimization justification and online information guidance documents related to importance of wetlands and watercourse and their buffers. Online guidance documents have also been developed and an education an awareness campaign is under development. There is continued collaboration with NGOs and stakeholders.

The provincial and federal government partnered at the beginning of 2019 to support three projects under Natural Resource Canada's Building Regional Adaptation Capacity and Expertise (BRACE) program. One of those projects includes establishing a Natural Infrastructure Community of Practice for planners, engineers, municipalities and NGOs.

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: In Progress **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, for the Odilon bridge on the Tracadie River and the Anderson Bridge on the North West Miramichi River, the Department of Transportation and Infrastructure (DTI) has taken into account the latest sea-level rise predictions from Daigle (2017) to determine appropriate bridge deck elevations.

Work to raise Darling Island Road was completed in December 2019. The raised road will significantly reduce the risk to residents from being stranded as a result of future flooding, as experienced in 2018 and 2019.

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 the Nova Scotia to increase the 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.

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: In Progress **Lead: Environment and Local Government**

The provincial government has met with all critical infrastructure owners including; Bell Aliant, NB Power, Rogers Communications to gather preliminary information related to climate change adaptation planning.

NB Power has established a formal Climate Change Adaptation Working Committee and is working to complete a climate change adaptation plan for the utility.

The provincial government initiated the New Brunswick HealthADAPT program. The project includes development of climate change health vulnerability and adaptation planning assessments of health care facilities and their regions.

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: In Progress **Lead: Environment and Local Government**

Through the adaptation planning process, several municipalities have begun work on evaluating the vulnerability of their critical infrastructure, such as drinking water supplies and sewage treatment systems.

Climate change adaptation planning continues to be supported through the Environmental Trust Fund.

Furthermore, all New Brunswick local governments must further evaluate their assets against climate change impacts as part of their asset management requirements. This work is intended to compliment adaptation planning work in municipalities.

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

Status: In Progress **Lead: Environment and Local Government**

The provincial government considers the impacts of climate change and extreme weather in infrastructure decision making. The Department of Transportation and Infrastructure and the Climate Change Secretariat are working together to examine the provincial Environmental Management Manual to identify opportunities to include more in-depth climate change risk information for provincial infrastructure. Furthermore, all New Brunswick local governments must further evaluate their assets against climate change impacts as part of their asset management requirements.

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: In Progress **Lead: Environment and Local Government**

The Environmental Trust Fund continues to assist multiple sectors in developing adaptation initiatives. These include, municipalities identifying and resolving major vulnerabilities impacting their communities, regional service commissions building regional adaptation plans, researchers generating climate data and tools, and NGO's building and disseminating educational and awareness materials while leading collaborative efforts across sectors. Work is also being done to support First Nations communities developing 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: In Progress **Lead: Environment and Local Government**

Current efforts are focused on providing ongoing support to local and municipal governments in their adaptation planning efforts. Actions 81 and 82 speak to the work that is being done to complete adaptation planning for communities. A guidebook has been developed and distributed to assist communities in their adaptation planning efforts.

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

Status: In Progress **Lead: Environment and Local Government**

Work is ongoing to support regional adaptation planning efforts throughout the province. This work has been supported by the Environmental Trust Fund. To date, Regional Service Commissions (RSC) that have completed regional climate change adaptation plans include the RSC Northwest, RSC Chaleur, and RSC Southwest. Work is ongoing in RSC Peninsula and Southeast/Sud-est. This work will benefit municipalities as well as Local Service Districts (unincorporated areas) that often lack the capacity to develop adaptation plans. The provincial government will continue to facilitate these efforts by providing guidance, materials, local climate projections, and tools such as coastal and inland flood hazard mapping, LiDAR data and mapping, historical flood elevations, and coastal erosion rates.

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**

The modernized *Community Planning Act* and the modernized *Local Governance Act* were proclaimed on January 1, 2018. In each new Act new tools including broader powers were provided to local governments.

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: In Progress **Lead: Environment and Local Government**

Statements of provincial interest have not been established to date.

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 New Brunswick cities have completed vulnerability assessments and adaptation plans.

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**

Highest risk municipalities have completed vulnerability assessments and adaptation plans. Highest risk municipalities for the purposes of this action include coastal communities with a history of flooding.

Adapt natural resources and agriculture

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

Status: In Progress **Lead: Natural Resources and Energy Development**

The provincial government is taking both a strategic and operational approach to adapting forests to climate change through forming partnerships towards education, training and research efforts.

In March 2018, the Department of Natural Resources and Energy Development hosted an information session on Adapting New Brunswick's Forests and Ecosystems to Climate Change. The session included speakers from the New Brunswick Climate Change Secretariat, the Nature Conservancy of Canada, Université de Moncton, and Natural Resources Canada. 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.

Two collaborative research projects have begun:

- 1) the Canadian Forest Service (CFS) on identifying and integrating the impact of projected climate scenarios on stand level tree regeneration into forest management planning tools used by the Department of Natural Resources and Energy Development.
- 2) 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. These projects also support actions 84 and 90.

A plan for Crown road management has been developed and includes a vulnerability assessment to inform 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: In Progress **Lead: Natural Resources and Energy Development**

The provincial government has initiated efforts to better understand how projected climate change may impact future forest fire operations.

Planning is underway to determine the best way to link the outcomes of actions 58, 83 and 90 with existing resource management processes to ensure that climate change adaptation plans are in place by 2022.

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: In Progress **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.

To date, 15 research projects with climate change implications have received funding. Projects include; research on efficient nitrogen application; the New Brunswick agricultural weather network; effects of water stress and supplemental irrigation on potato production under climate change conditions; promoting resilient soil health and ecosystem services with diverse cover crops; and a soil health bench marking 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) includes a stronger focus on climate change. The provincial government, through CAP programming opportunities, is making progress in achieving its commitments under the provincial Climate Change Action Plan.

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

Status: In Progress **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. Since 2018, 85 projects related to climate change adaptation have to date received 46 per cent of the CAP beneficial management practices program budget. 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 has been 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.

Since 2018, CAP funding was provided for 9 riparian protection/restoration projects.

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: In Progress **Lead: Environment and Local Government**

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

In 2017, The provincial government hosted two training sessions for non-government organizations (NGOs) on the implementation of the Wetland Ecosystems Services Protocol for Atlantic Canada (WESP-AC). This assessment tool enables consultants, NGOs, and other interested parties to perform a rapid assessment of wetlands and generate scores of functions the wetland provides (e.g. carbon storage, phosphorous retention). This information is useful for land-use planning in areas with wetlands, monitoring

wetland restoration, and, where necessary, compensating for the loss of wetlands through the creation of wetlands with similar ecology. In 2019, WESP-AC was revised to include climate change information.

WESP-AC has also been presented to decision makers from the Regional Service Commissions and Local Governments. An online guidance document is expected to be released in 2020.

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: In Progress Lead: Natural Resources and Energy Development

The provincial government has initiated efforts to develop a climate vulnerability assessment to identify and focus on species, habitats and landscapes at risk. A review of climate change vulnerability assessments by other provinces and states has been completed to inform New Brunswick's approach. A preliminary list of species for assessment has been compiled.

The provincial government is supporting an Ecological Connectivity Assessment project with the University of New Brunswick and other partners to assess connectivity across New Brunswick, including current functional connectivity and connectivity issues resulting from climate change.

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: In Progress Lead: Environment and Local Government

The current *Guide to Environmental Impact Assessment (EIA) in New Brunswick* document includes requirements for proponents to consider the impacts of climate change such as flooding and, extreme weather events and also GHG emissions when planning their projects. The provincial government is working to enhance the current EIA document with additional updated climate specific guidance.

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: In Progress 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. It is important to note however, 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 16 projects.

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

Status: In Progress **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 a further 2 years, to incentivize provinces and municipalities to undertake further mitigation projects to incorporate climate change adaptation into recovery efforts.

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 is also in the process of designing the new Anderson Bridge using the latest sea-level rise projections, LiDAR data, and the first-ever iteration of wave run-up estimates for New Brunswick’s coastal waters. These same set of projections, data, and estimates are also informing the development of new design standards that will be used to build earthen dykes that protect the critical transportation link between Nova Scotia and New Brunswick as well as the rest of Canada.

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: In Progress **Lead: Environment and Local Government**

Currently, there are collaborative groups in New Brunswick working towards bringing together adaptation practitioners, municipalities, infrastructure owners, emergency management officials, and the public, to share information, research, and data for communicating knowledge on climate change adaptation.

The Environmental Trust Fund has been instrumental in supporting this work. Examples of collaborative work conducted in 2017–2019 include:

- The Association of Municipal Administrators of New Brunswick engaged municipal professionals, produced a bilingual guide/playbook, and conducted two provincial workshops. Workshops were an opportunity to learn about improving resiliency, disaster risk reduction, climate change adaptation and emergency preparedness.
- The Smart Shift Summit took place in March 2017 in Moncton. Over 60 sessions were held covering five theme areas: smart economy, electricity shift, planning for change, innovation on the land, and efficient energy use.

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: In Progress **Lead: Environment and Local Government**

The provincial government is developing new coastal flood hazard mapping which includes the creation of flood hazard maps for the New Brunswick coastline. The existing inland flood hazard maps are being updated and new flood hazard maps are being developed for other areas of the province where they did not previously exist.

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

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

In 2017–18, the provincial government initiated and completed a scoping study to examine the relationship between watershed condition, land use and peak flow events associated with extreme precipitation.

The project focused on the following four deliverables:

- 1) Summarize and review current knowledge on the relationship between climate change, land use change, ecosystem flood protection capabilities, and peak flow events;
- 2) Identify how the changing climate will affect New Brunswick and identify some of the challenges that the province will face;
- 3) Identify some shortcomings in New Brunswick in dealing with the above;
- 4) Outline recommendations for future work that will aid New Brunswick in mitigating/adapting to these impacts.

A review of recommendations and next steps is on-going.

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

Status: In Progress **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 to access flood insurance protection.

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: In Progress **Lead: Health**

The provincial government developed a public health communication strategy to educate government staff, the public, and other stakeholders about climate change impacts to human health. The strategy was finalized in 2019 and has been presented to public health professionals throughout the province.

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: In Progress **Lead: Health**

An analysis is currently underway to better understand the current state of health-related climate change research in New Brunswick, including what has been completed, what is underway, and any gaps that may exist. This work will help determine priority areas for future research and funding, inform potential needs for surveillance, warning tools, and policies, and how to best support ongoing communication and collaboration efforts.

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

Status: Complete **Lead: Health**

The Heat Alert and Response System (HARS) is active throughout the province. The HARS program is reviewed annually and updated as required.

The provincial government works closely with the federal government to review how information is exchanged between the two government bodies and to 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 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 the Office of the Chief Medical Officer of Health (OCMOH) for consideration. The OCMOH will continue to evaluate how best to move forward on the recommendations including the possibility of incorporating this work within the implementation of other health-related actions.

New Brunswick researchers have also completed studies of the mental health impacts associated with 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: In Progress Lead: Health

The provincial government continues to explore, and support in partnership with others the development of new warning tools for public health hazards linked to climate change.

The Heat Alert and Response System is an example of a partnership between the provincial and federal governments.

The HealthADAPT project is another example of provincial and federal collaboration. The project's aim is to enable capacity building at all levels (local, regional and provincial) to help communities to identify, adapt and respond to the impacts of specific climate change on human health through the development and refinement of a New Brunswick specific climate change and health vulnerability assessment and adaptation approach.

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: In Progress 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.

Habitat and climate related changes that impact vector borne diseases are a regular part of public health assessment for vector borne diseases like Lyme disease.

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: In Progress Lead: Opportunities NB

In support of a clean-technology acceleration strategy, an initial scoping exercise was undertaken in 2018 to review and consolidate existing data sources, define North American Industry Classification System and Stats Canada codes for categories and sub-sectors within clean technology, identify companies in New Brunswick within those codes, and work with stakeholders to identify potential projects for consideration.

Building on this work, in partnership with BioNB and the Atlantic Canada Opportunities Agency a comprehensive study was undertaken to identifying the strengths and opportunities of the clean tech industry in New Brunswick. It focused on identifying projects that could leverage existing federal funding. This work identified priority opportunities in bio-based energy, cleaner energy alternatives, water technologies and waste to bio-products and also revealed existing sector strengths in the Waste, Construction, Agriculture and Forestry sectors.

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: In Progress Lead: Opportunities NB

The provincial government's Forest Biomass Policy sets a framework within which companies are permitted to harvest forest biomass in a sustainable manner. Materials harvested are used either as a direct input to energy production or to produce fuel (e.g. pellets).

The provincial government is continually investigating large-scale projects for the production of bioenergy and/or biofuels.

There are more than 20 New Brunswick facilities which already consume residual forest products (either forest biomass or sawmill residues) for the purpose of energy production and/or producing fuels.

Since investing \$10 million in research and development for Advanced Small Modular Reactors (SMR) in 2018, the provincial government has continued to work with the vendors (ARC and Moltex), NB Power and UNB to progress the designs through the design phase and Canadian Nuclear Safety Commission's regulatory process. New Brunswick is formally collaborating with Ontario and Saskatchewan on SMR development.

The provincial government's Enabling Agricultural Research and Innovation Program, under the Canadian Agricultural Partnership, supports the development of the sector in various ways, including innovative research and development projects, pre-commercialization development activities and adoption of new technologies. From 2018 to 2020, 15 projects with climate change/clean technology implications were approved.

Stash Energy Storage, founded in 2017 by three UNB students, was awarded an investment from the New Brunswick Innovation Foundation and Island Capital Partners in 2019. The investment built on funding received in 2018 to further develop and trial their prototype Stash M1 heat pump thermal storage system and bring it to market. The M1 has the capability of storing four hours of thermal energy for later use during peak energy periods, reducing GHG emissions and home energy costs by 30%.

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: In Progress Lead: Opportunities NB

The provincial government continues to support innovation opportunities presented by our changing climate. As an example, Dr. Paul Arp and the University of New Brunswick have developed a 'Wet Areas Mapping' product that identifies low-lying areas or areas where a highwater table exists that are prone to flooding. This information is being used to inform development planning and natural resource management both in New Brunswick and elsewhere in the country. This work has been supported by the Environmental Trust Fund.

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: In Progress Lead: Tourism Heritage and Culture

In 2017–18, a pilot initiative extended the operating seasons of all provincial parks and attractions to Thanksgiving. In 2019–20, this initiative was continued in three provincial parks with an extended season for Mactaquac, Mount Carleton and Sugarloaf.

The provincial government encouraged the establishment of Park Resource Management Plans (RMP) to enable economic, conservation and recreational outcomes. A RMP for New River Beach Provincial Park was completed in 2019–20. It considers the impacts of climate change and need to adapt. Currently, a Resource Management Statement for Mount Carleton is being developed. An additional 17 RMPs are expected to be completed on an anticipated 1–2 per year cycle which are motivated by the contents of the Climate Change Action Plan.

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: Future Start Lead: All

As outlined in action 113, Energy Management Programs are being used in New Brunswick schools and health care facilities. These programs will result avoidance cost 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**

The Climate Change Progress Report will continue to be released on an annual basis and provide updates on the implementation of the 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**

The Climate Change and Environmental Stewardship Standing Committee of the Legislative Assembly was established in December 2019. Departments made presentations to the Committee on their climate change actions in February 2020.

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

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

In 2019, the provincial government updated its GHG emissions analysis using the Long-range Energy Alternatives (LEAP) model to assist in tracking GHG emissions reductions from the actions in the New Brunswick Climate Change Action Plan.

The provincial government will continue to use long-range energy and economic modelling to track, project and report on GHG emissions.

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: In Progress **Lead: Service New Brunswick**

The provincial government's Energy Management Strategy enables energy to be a manageable input to facility operations by incorporating energy awareness into everyday operational practices while maintaining or improving thermal comfort and indoor air quality for its patrons (patients, students, public service employees).

The Energy Management Strategy and reporting system will help to ensure all departments are accountable for energy consumption and corresponding GHG emissions. This includes reporting energy, GHG emissions and ENERGY STAR® scores using Natural Resource Canada's (NRCAN) ENERGY STAR® Portfolio Manager. This will ultimately reduce the energy consumption in government funded buildings, lowering GHG emissions and providing cost avoidances for the people of New Brunswick.

In collaboration with School Districts, the Department of Education and Early Childhood Development, the Department of Transportation and Infrastructure and the Regional Health Authorities, 293 schools and 10 healthcare facilities were entered into the system. This is financially supported by NRCAN.

Horizon Health Network's Energy Management Program has proven to be successful. In 2018–2019 fiscal year, Horizon avoided emissions of 8,100 tonnes of GHG emission per year and in 2019–2020 fiscal year avoided emission of 3,760 tonnes of GHG emission per year. Furthermore, Horizon Health Network's Saint John Regional Hospital was the first healthcare facility in Canada with ENERGY STAR® certified in 2018 and 2019. Dr. Everett Chalmers Regional Hospital was 2019 ENERGY STAR® certified.

An Energy Management Program was initiated for school districts in 2018–2019 fiscal year. Energy management in schools for the 2019–2020 fiscal year resulted in a reduction of 2,940 tonnes of GHG emissions per year. Two schools in Anglophone School District West were 2019 ENERGY STAR® certified (Bliss Carman Middle School and Royal Road Elementary School), the first schools in Atlantic Canada to be certified.

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

Status: In Progress **Lead: Environment and Local Government**

The Environmental Trust Fund (ETF) has assisted many municipalities to develop climate change action plans in accordance with the Partners for Climate Protection program under the Federation of Canadian Municipalities, as well as, the development of a climate change action plan for a New Brunswick First Nation community.

In 2019 the ETF awarded a total of over \$200,000 in funding for four projects that assisted local governments in the initial development, implementation and advancement of Municipal and Community Greenhouse Gas and Energy Management Plans.

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

Status: In Progress **Lead: Environment and Local Government**

A total of 52 municipalities, First Nations communities, and Regional Services Commissions have completed Vulnerability Assessments. These Vulnerability Assessments are a full-scale and in-depth analysis of the vulnerability of a community's critical infrastructure, natural infrastructure, emergency response and public safety services, transportation network, significant cultural assets and landscapes, and populations.

A total of 41 municipalities, First Nations communities and Regional Service Commissions have completed formal Climate Change Adaptation Plans, that were subsequently adopted by their municipal councils, Band Councils, and Regional Service Commission Boards. These Adaptation Plans become the future work plans of communities and guide the subsequent work required to ensure that a community and its citizens implement adaptation measures and build 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: In Progress **Lead: Environment and Local Government**

The Climate Change Secretariat (CCS) continues to collaborate with members of academic community and other jurisdictions to explore means of measuring climate change adaptive capacity and reporting progress.

In 2018, CCS 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.

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 Climate Change Fund was established under the *Climate Change Act* in 2018. The *Act* outlines a series of eligible climate related expenditures including climate change adaptation and mitigation activities.

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 3 years (16–17 to 18–19), 71% of the ETF funding allocated through the application process was awarded to applicants who were successful in receiving funding in each of the last 3 years.

An additional 15% of the ETF funding allocated through the application process was awarded to applicants who were successful in receiving funding in 2 of the last 3 years.

The provincial government will continue to provide funding for important multi-year projects that address priority action areas for the fund, including climate-related initiatives.

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 2020 National Inventory Report, which includes GHG emissions up to and including 2018.

NEW BRUNSWICK'S GREENHOUSE GAS EMISSIONS TREND

New Brunswick's annual GHG emissions from 1990 to 2018 are represented in Figure 1. In 2018, provincial GHG emissions from all sources were 13.2 megatonnes (Mt) of carbon dioxide equivalent (CO₂e), approximately two per cent of the Canadian total. However, on a tonnes per capita basis, this equates to 17.1 tonnes per capita emissions which ranks New Brunswick fifth highest across provinces in Canada. The 2018 figure of 13.2 Mt represents a 6.8 Mt reduction since 2005 or 34%. 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 2 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

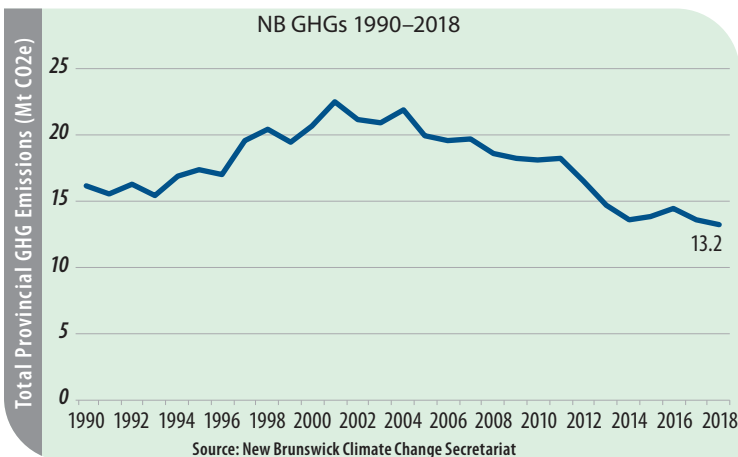
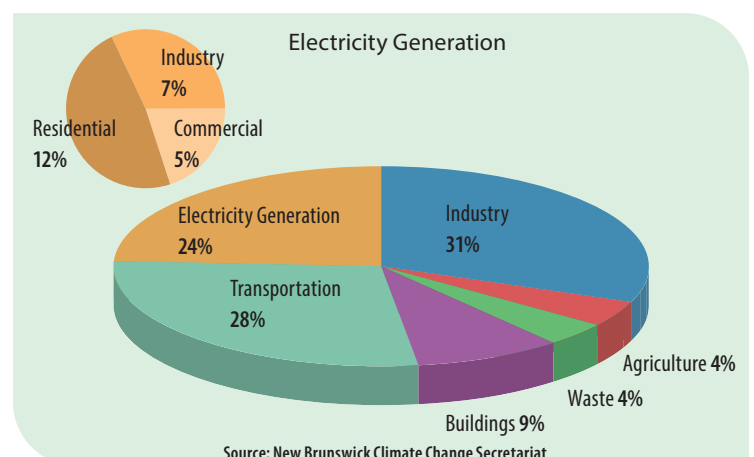


Figure 2:
New Brunswick GHG Emissions in 2018 – 13.2 Mt



Energy efficiency and renewable energy – residential and commercial buildings

The total GHG emissions for the building sector was 1.2 Mt in 2018 (Figure 3). 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.

Transportation

The total emissions from the transportation sector was 3.7 Mt in 2018, which include passenger (2.1 Mt) and freight (1.3 Mt)¹ (Figure 4). GHG emissions from transportation has decreased by 1.6 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 emissions reductions, at this time.

Agriculture

The total GHG emissions from the agriculture sector is 0.5 Mt in 2018 (Figure 5). Overall emissions from agriculture have been relatively stable since 1990. The majority of this sectors emissions are attributed to livestock manure.

Figure 3: Buildings

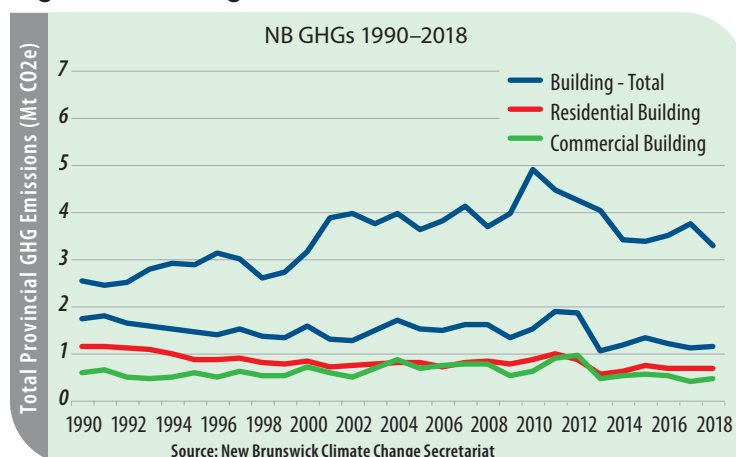


Figure 4: Transportation

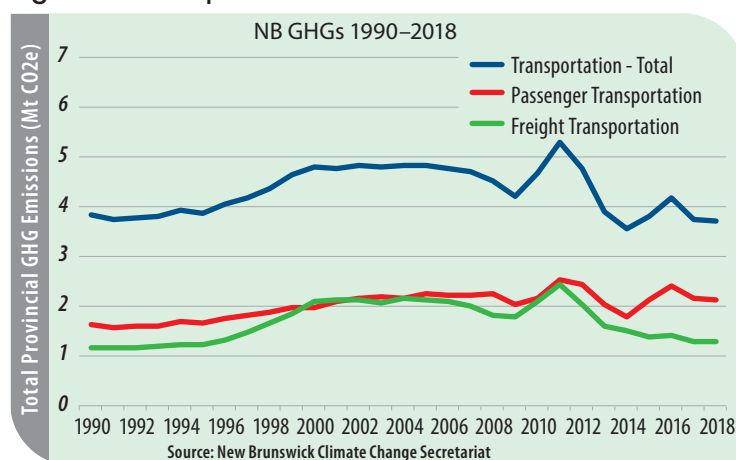
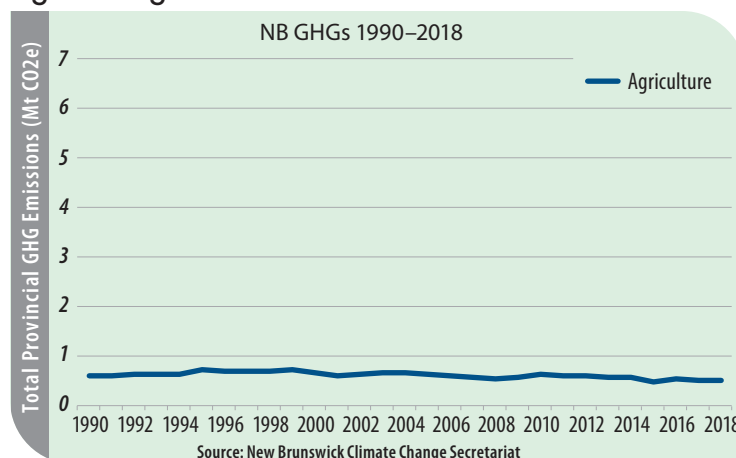


Figure 5: Agriculture



¹ Total transportation emissions also include “off-road transportation” emissions at 0.3 Mt.

Waste Management

The total GHG emissions from the waste management sector was 0.5 Mt in 2018 (Figure 6). There has been a slight decline in emissions since 2006 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 bioenergy to generate clean electricity, thereby further reducing electricity-derived GHG emissions.

Industry

The total GHG emissions from large industrial facilities was 4.1 Mt in 2018. This is a decline of 1.7 Mt since it peaked in 2010 (Figure 7). 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.

Electricity Generation

The GHG emissions from electricity generation was 3.2 Mt in 2018, which includes residential 1.4Mt, commercial 0.7 Mt and industrial 1.1 Mt (Figure 8). 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 6: Waste Management

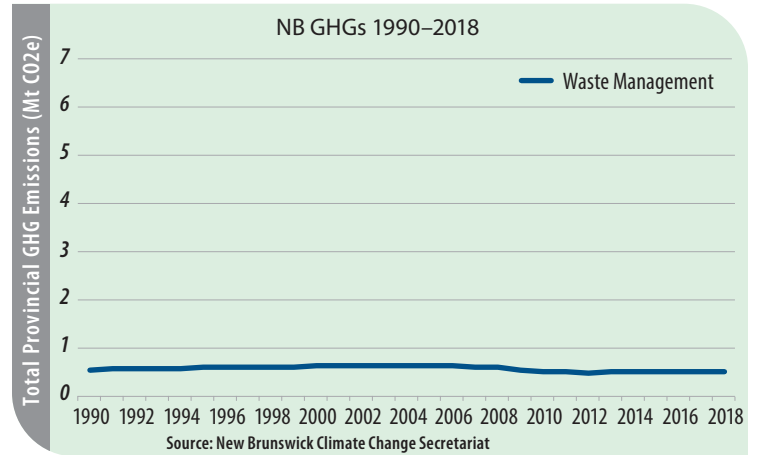


Figure 7: Industry

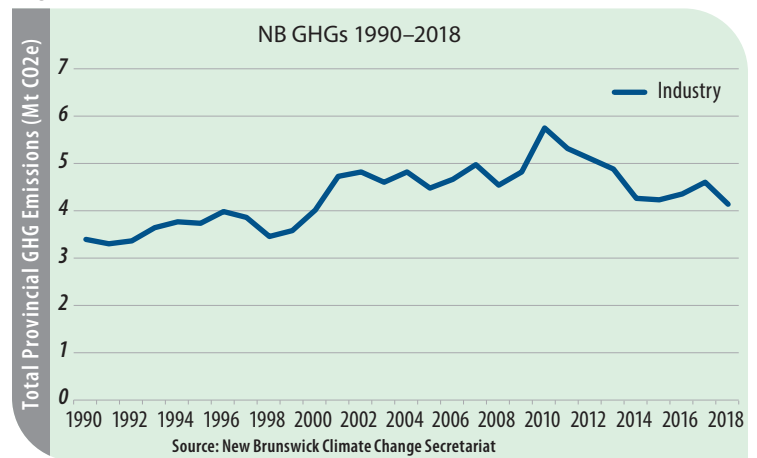


Figure 8: Electricity Generation

