

Transitioning to a Low-Carbon Economy

New Brunswick's Climate Change Action Plan



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Introduction: The plan and its purpose

The science of climate change is clear. The Intergovernmental Panel on Climate Change, the world's foremost authority on climate change, has projected that an increase in global temperatures of more than 2 degrees Celsius will result in irreversible and catastrophic impacts. The current level of greenhouse gas (GHG) emissions is expected to raise global temperatures by 3.5 °C before the end of this century.

Projections indicate that the effects on climate in Canada will be greater than the rest of the world. Temperatures are expected to rise two times faster than the global average. In northern Canada, this rise is expected to be three times faster.

This trend is already evident in New Brunswick. We are seeing temperatures going up, precipitation increasing and sea levels rising. The province can expect an elevated risk of heat-related health concerns; new pests and invasive species; flood damage; impacts from extreme winds; and icing of trees and power lines. Rising sea levels have also increased the risk of flooding and coastal erosion.

Under the *Paris Agreement on Climate Change*, Canada and 194 other countries agreed to keep the rise in the global average temperature below two degrees Celsius in this century. To date, 110 countries have ratified the agreement, which came into force on Nov. 4, 2016. This historic United Nations agreement signals the commitment of countries to adjust their policies and budgets to foster lower-carbon economies. This increased certainty in direction is expected to encourage major private- and public-sector investments in new technologies and approaches that will improve much of how we do things today.

Canada is making its contribution with ambitious GHG reduction targets, advances in adapting to the impacts of climate change, and contributions to climate change action in developing countries. First Ministers launched under the *Vancouver Declaration* a nationwide process with the objective of developing a pan-Canadian framework on clean growth and climate change, which will solidify collaboration between provinces, territories and the federal government on meeting international and domestic commitments.

This transition includes many opportunities for New Brunswick to be more efficient and competitive, to open new business opportunities and to build more resilience into our aging infrastructures.

Our actions

The *New Brunswick Climate Change Action Plan* outlines a bold vision for our province, by intensifying our efforts to combat climate change.

Reducing GHG emissions is vital to limiting future global temperature increases and related climate change. Adapting to climate change is also necessary because a portion of the GHGs already released into the atmosphere will remain there for many years. Current trends in climate change will continue even with a decline in emissions. New Brunswick's response to climate change must therefore address both GHG emission reduction (mitigation) and preparation for inevitable climate change (adaptation).

This action plan signals New Brunswick's intention to play its part in achieving regional GHG emission reduction targets by adopting targets that reflect total outputs of 10.7 Mt by 2030¹ and 5 Mt by 2050², recognizing the unique challenges of New Brunswick's economy. The provincial government confirms its previous target of 14.8 Mt for 2020³.

This plan will also address numerous other commitments respecting climate change, including the 2015 *Paris Agreement* under the United Nations *Framework Convention on Climate Change*, the 2015 *Canadian Energy Strategy* released by the Council of the Federation, the 2016 *Vancouver Declaration on Clean Growth and Climate Change*, and the 2016 Pan-Canadian Framework.

This plan contains a climate change adaptation strategy supported by actions to build resilience into our communities, businesses, infrastructures and natural resources. Acting early and adapting to our changing climate is far more effective and cost-effective than dealing with climate impacts after they have occurred.

Highlights of the plan include:

- Providing the government leadership needed through over 100 clear action items to support sustained and ambitious actions on climate change.
- Expanding energy efficiency and clean energy programs across all sectors and all fuels with ambitious performance targets.
- Phasing out coal as a source of electricity as quickly as possible, respecting New Brunswick's economic reality.
- Planning for and investing in new technologies that reduce pollution, such as smart grid and renewable electricity.
- Establishing a made-in-New Brunswick price on carbon and caps on GHG emissions that reflect the reality of the New Brunswick's economy and will provide opportunities to invest in emission reduction measures that will create jobs for New Brunswickers, such as through energy efficiency.
- Leading by example by making government carbon-neutral by 2030 and increasing spending on energy efficiency in the capital budget by 50%.
- Measuring and reporting progress with strong oversight by committees of cabinet and the legislative assembly.

It is important to emphasize that initiatives aimed at combatting climate change also offer potential for sustainable economic development and long-term job creation in the province. It has been found to be a stimulus for investment in innovation and business development. Energy efficiency investments, for example, reduce imports of fossil fuels and improve affordability of energy for families and competitiveness for businesses by lowering energy bills. These investments also create a substantial number of local jobs. Similarly, renewable energy is sourced in our province, has low or no emissions, and is resistant to price volatility of fossil fuels. The Province will continue to work with the federal government to explore opportunities for federal funding to support the actions identified in the plan.

1 Equivalent to 35 per cent below 1990 emissions

2 Equivalent to 80 per cent below 2001 emissions

3 Equivalent to 10 per cent below 1990 emissions

This plan provides a clear path forward to reducing GHG emissions while promoting economic growth and enhancing current efforts to adapt to the effects of climate change.

Transitioning to a Low-Carbon Economy - New Brunswick's Climate Change Action Plan

This plan focuses on seven areas:

- Provincial government leadership.
- Collaboration with First Nations.
- GHG emission reductions.
- Adaptation to the impacts of climate change.
- Economic opportunities.
- Accountability and reporting.
- Funding for climate change.

Provincial government leadership

The response to climate change is a shared responsibility involving all New Brunswickers. There is a role and a place for everyone as New Brunswick addresses the challenges ahead. The role of the provincial government is critically important. It must provide the leadership and model the behaviour and actions needed to ensure sustained and ambitious actions to address the challenges and opportunities presented by climate change.

Role of the provincial government in leading change

The provincial government must take a strong leadership role in addressing the challenges and opportunities presented by a changing climate. To be successful in addressing climate change, the provincial government must provide the governance structure and support necessary to succeed and ensure the proper accountability for the implementation of New Brunswick's climate actions.

The provincial government will:

- 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.*
- 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.*
- 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).*
- 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.*
- 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.*
- 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 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.*

Education and awareness

Reducing GHG emissions and adapting to the impacts of climate change require the engagement of all New Brunswickers, businesses, organizations and governments at all levels. The battle against climate change will be most successful with a clear understanding by all New Brunswickers of the serious nature of the issues and an awareness of what they can do to contribute.

The provincial government will:

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

Capacity-building

Capacity-building refers to growing the strengths, skills, knowledge, competencies, and abilities of New Brunswickers to respond to climate change. Capacity, including human, knowledge and financial, is a key component to being able to respond to the opportunities and challenges posed by climate change.

New Brunswick has a long-established and effective NGO network that works to make linkages and create partnerships among stakeholders. This effort has resulted in the creation of capacity in communities and linkages with academic institutions, researchers and planning bodies such as the regional service commissions.

The provincial government will:

- 10- *Support and strategically invest in research at New Brunswick universities and colleges.*
- 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.*
- 12- *Strengthen linkages between government, researchers, NGOs, local communities and First Nations, to create partnerships and increase local capacity.*

Carbon-neutral government

The provincial government owns and operates about 1,000 buildings and 4,500 vehicles. These assets produce around 400,000 tonnes of GHG emissions annually, with energy costs of \$85 million each year. As a significant consumer of energy, the provincial government is committed to leading by example by adopting ambitious measures to reduce emissions from its facilities, fleets and other assets, as well as by using procurement to drive market demand for low-carbon goods and services.

A carbon-neutral government policy, a commitment to having no net impact on emissions, is one example of a tool that can be used to enable this type of change. British Columbia's *Carbon Neutral Government Regulation*, for example, has achieved net-zero emissions in its operations since 2010. The regulation covers the entire public sector, including government offices, schools, colleges and hospitals. After all energy efficiency and cleaner fuel options are implemented, achieving carbon neutrality in the New Brunswick government will require an investment in emissions reduction projects to offset any remaining emissions from others who reduce or prevent GHG emissions. An offset program will help to fund more GHG reduction projects around the province and engage a broader range of participants that contribute to achieving the province's goals.

The provincial government will:

- 13- *Be carbon-neutral in its operations, facilities and vehicles by 2030.*
- 14- *Set up a GHG Offset program to facilitate achievement of its carbon-neutral goal.*
- 15- *Encourage municipal and other public institutions to participate and make similar commitments as the provincial government.*

Provincial buildings GHG emissions

The provincial government's Green Building Policy sets high environmental standards for the construction and refurbishment of all buildings that receive public funding. Energy audits have been completed in schools, hospitals and provincial parks across New Brunswick. Up to 50 public buildings are being considered for conversion to cleaner energy sources. Biomass and natural gas energy systems have already been installed in numerous public buildings.

The provincial government will:

- 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.*
- 17- *Improve the energy performance of all existing government-owned buildings, including offices, schools, hospitals and affordable housing.*
- 18- *In urban areas, and where possible elsewhere, preferentially locate public buildings in areas accessible by public transit, walking and cycling.*
- 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.*
- 20- *Require energy performance identification (benchmarking and labelling) for all publicly funded new construction and major building renovations.*
- 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.*

Provincial transportation GHG emissions

While the provincial government's Green Vehicle Policy contains a commitment to stringent emission standards when replacing certain vehicles and supports the purchase of fuel efficient vehicles, there is a need for a more comprehensive provincial green transportation policy that includes specific commitments and targets to reduce vehicle emissions, support alternative transportation and reduce the demand for travel.

The provincial government will:

- 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.*

Low-carbon procurement

Green and low-carbon procurement policies can achieve better value for money by fully understanding the environmental costs associated with the production, purchase, use and disposal of goods and services. The provincial government has already implemented a number of green procurement practices and is purchasing an increasing range of green products and services.

The provincial government will:

- 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.*

Inter-jurisdictional partnerships and collaboration

Collaboration with partners continues to be an important cornerstone for successfully addressing climate change, and this is particularly important for a small province such as New Brunswick.

Examples include several inter-provincial and international collaborative arrangements such as the New England Governors and Eastern Canadian Premiers (NEG-ECP) regional action plans; the Atlantic Climate Adaptation Solutions Association (ACASA), a partnership between the Atlantic provinces; and the Gulf of Maine Council's Climate Network.

Sharing information and experiences related to climate change adaptation and GHG reduction allows New Brunswick to leverage its contributions to achieve greater results as a collective than any individual province could achieve on its own. Most climate change issues include common concerns and interests amongst jurisdictions.

Also, within New Brunswick, a wide range of collaborations are proving to be highly effective in achieving climate change objectives. Valuable partnerships with local governments, businesses, academia and non-profit organizations can continue to expand opportunities such as climate change adaptation and smart growth community planning, resulting in energy-efficient, low-carbon and climate resilient communities.

The provincial government will:

- 24 - Continue to engage actively with neighbouring jurisdictions through the NEG-ECP and Gulf of Maine Council in climate change plans and initiatives.*
- 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.*
- 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.*
- 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.*
- 28 - Continue to participate and maintain relationships with national adaptation working groups such as Natural Resources Canada's Adaptation Platform.*

- 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.*

Collaboration with First Nation communities

Climate change will impact the natural environment upon which First Nations communities depend. There will be changes to wildlife and plant species, traditional medicines, and waterways. This will impact the culture and way of life for many First Nations communities. First Nations communities are also among the most vulnerable to climate change due to their proximity to coastal and inland waterways. New Brunswick will work with First Nation communities to help address the challenges.

First Nation communities will benefit from the economic opportunities presented by transitioning to a low-carbon economy. Reducing GHG emissions presents opportunities for job creation and economic development across the province, as well as opportunities to enhance the efficiency and sustainability of energy use in First Nation communities.

The ideas included in this section are potential areas of collaboration with First Nations. They are a starting point, setting out New Brunswick's commitment to an ongoing dialogue and long-term engagement.

The provincial government will:

- 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.*

GHG emissions reductions

New Brunswick's emissions are projected to increase gradually during the next 15 years. A new, integrated approach to GHG emission reduction is required for New Brunswick to meet our climate responsibilities and maintain economic competitiveness.

New Brunswick has a small population with an economy dominated by energy-intensive and export-oriented industry. It is important that economic investments be made in reducing energy waste and making cleaner energy choices. Transitioning to a low-carbon economy is no longer just a climate issue; it is increasingly about access to export markets and being competitive in attracting new investment. New Brunswick must also be aware of the circumstances regarding our primary export destinations in the northeastern United States and new markets in Europe and other parts of the world. The federal government has joined about 40 nations and many states and regions in having implemented or committed to putting a price on carbon emissions. There is a risk that carbon-intensive New Brunswick products may be subject to market or regulatory challenges in destination jurisdictions and erode our competitiveness. We must be mindful of this risk.

This action plan supports two objectives: reducing GHG gas emissions and maintaining economic growth.

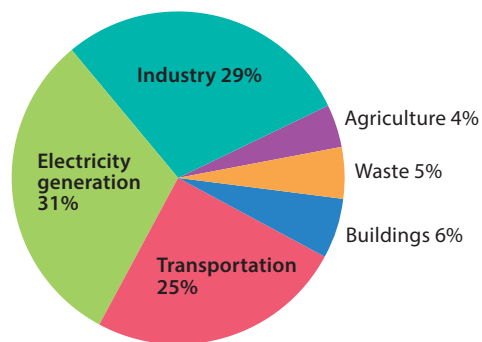


Figure 1: Distribution of GHG emissions in New Brunswick

Source: Environment Canada

Figure 1 illustrates the distribution of GHG emissions among the various sectors in New Brunswick. Electricity generation, industry and transportation are the three dominant contributors to provincial GHG emissions.

In developing this action plan, the provincial government carried out a review and analysis of a wide range of options to reduce GHG emissions. Consultations across government, stakeholders and other provinces were conducted and recommendations from the Select Committee on Climate Change were considered. An extensive analysis of options helped to evaluate the potential GHG emission reductions.

The analysis of options was used to identify several high-level policy and program initiatives for inclusion in this action plan. These initiatives

include a price on carbon emissions, clean energy and efficiency programs, renewable energy programs, reduced emissions in transportation, regulation of industry GHG emissions, reducing agricultural emissions, waste, planning for smart, low-carbon development as well as carbon sinks and offsets.

The selected initiatives have been chosen from among the best approaches that are effective in reducing GHGs while protecting and growing the economy. Further, while any single initiative can stand alone, the effectiveness of each one is increased by adoption of the full slate of initiatives due to their inter-dependent nature. For example, establishing a price on carbon emissions helps with shifting investment to lower emissions activities and also funding programs supporting energy efficiency to reduce costly waste. These actions are the best and lowest-cost options to help phase out fossil fuels in the longer term.

GHG emission reduction targets

Although New Brunswick's GHG emissions have declined in recent years, they are not projected to decline in the future under the status quo. This, along with increasingly stringent GHG reduction targets adopted by NEG-ECP and the provincial government, means that additional GHG emission reduction measures will be required.

The provincial government will:

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

Cross-sector action – A price on carbon

It is now clear that strong action on climate change includes the commitment to establish a pricing mechanism for GHG emissions (a price on carbon). In October 2016, the federal government announced its intention to establish a price on carbon emissions of \$10 per tonne in 2018, rising to \$50 per tonne by 2022. Provinces and territories will have a choice in how they implement this pricing. Should any province or territory not establish a price on carbon by 2018, the federal government will implement a price in that jurisdiction.

When Ontario implements its cap-and-trade program, 85 per cent of Canadians will be paying a price on carbon. All of the northeastern United States already have a price on carbon emissions. This measure will stimulate investment in GHG emission reductions but is insufficient on its own to meet emissions reduction targets. That is why, in addition to carbon pricing, programs that provide advice and incentives for energy saving and clean energy are needed. Revenue generated from carbon pricing will be used to help support these new and expanded programs in the future.

The provincial government will:

- 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.***

Clean energy and efficiency programs

As 92 per cent of emissions in New Brunswick are from energy use, there are essentially two dominant ways to reduce GHG emissions: reducing energy consumption and switching to cleaner fuels. There are initiatives, currently being implemented in leading jurisdictions, which achieve this while increasing investments in their local economies and creating jobs. Studies and experience show positive economic outcomes related to this approach.

The potential for energy efficiency in homes, businesses and transportation in New Brunswick is substantial. Leading jurisdictions are achieving efficiency gains by reducing energy waste by 1.5 per cent to 1.75 per cent per year through energy efficiency programs. This crosses all fuels and all sectors. In electricity alone, which is about 30 per cent of energy use in New Brunswick, the energy efficiency potential in electricity has been estimated by NB Power to be equivalent to more than 600 MW. A broader and more aggressive suite of energy efficiency and clean energy programs will reduce reliance on fossil fuelled electricity generation.

Energy we do not use is free of cost and emissions. Through eliminating waste of energy through efficiency measures, we can significantly reduce demand. Investments made within the province in energy efficiency are an attractive alternative to buying imported energy. The provincial government recognizes the significant untapped potential to improve New Brunswick's energy efficiency, thereby reducing GHG emissions and energy costs.

The provincial government will:

- 33- ***Mandate energy efficiency delivery agents to provide energy efficiency initiatives with:***
- a- ***clear performance-based targets for program-delivery services, in line with potential for efficiency gains in New Brunswick and performance levels in leading jurisdictions; i.e., in the range of 1.5 per cent to 1.75 per cent of sales per year;***
 - b- ***sustained funding, including financial incentives and financing mechanisms, to support enhanced progressive long-term programs;***
 - c- ***expanded capacity and programs to support low-income New Brunswickers;***
 - d- ***active promotion and recruitment of participants to enhance program uptake;***
 - e- ***training for building contractors through partnerships with the New Brunswick Home Builders' Association and other stakeholders;***
 - f- ***coverage of all sectors (i.e., transportation, industry, commercial, residential) and all fuels;***
 - g- ***the scope to include distributed clean energy options such as solar, wind and bio-energy;***
 - h- ***performance auditing and reporting periodically; and***
 - i- ***legislative and regulatory authority to enable energy efficiency delivery agents to meet the above conditions.***
- 34- ***Increase spending on energy efficiency in the capital budget by 50%.***
- 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.***

- 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.*
- 37- *Continue to encourage innovation such as smart grid technologies to facilitate additional efficiency gains in electricity service in the mid to long-term.*
- 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.*
- 39- *If viable, require energy labelling for all new building construction, both residential and commercial.*

Renewable and low-emission energy

New Brunswick is endowed with a wealth of renewable energy sources (hydro, biomass, wind and solar), which offer an array of local benefits for sustainable economic development, including lower GHG emissions. For example, the use of domestic wood-based biomass, such as wood pellets, offers economic development opportunities and provides an affordable low-emission alternative to oil and electric heating.

Much of the province's electricity already comes from renewable or emissions-free sources. The 2011 energy policy increased the commitment of the provincial government by setting a target of meeting 75 per cent of electricity demand with renewable or emissions-free sources by 2020.

The provincial government will:

- 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.*
- 41- *GHG emissions from electricity generation in the province will be regulated in alignment with provincial emissions targets.*
- 42- *Support the uptake of increased renewables for both electricity generation and residential/business heating in New Brunswick, through financial incentives, policy and legislation.*
- 43- *Investigate and remove existing barriers to achieving greater implementation of renewable power generation, distributed energy generation, and net metering.*
- 44- *Review the outcomes of the small-scale community renewable energy program upon completion and expand or modify the program accordingly.*
- 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.*

Reduced GHG emissions from transportation

Transportation contributes about 30 per cent of all GHG emissions in the province. To reduce these emissions, initiatives are needed in three areas:

- vehicle choices;
- vehicle fuels; and
- transportation modes (road, rail, marine and pipelines).

The availability and popularity of electric vehicles and hybrids are growing rapidly. They produce lower GHG emissions and air pollution than traditional internal combustion engines. As the province's electricity is increasingly sourced from low-emission or non-emitting sources, the environmental benefits of switching to electric vehicles can be significant.

Emissions from freight movement can also be improved through the use of alternative fuels, aerodynamic treatment to trucks and engine design advancements. Shifting the mode of transportation can reduce energy use and emissions such as shifting from rail to pipelines. Better access to clean alternative transportation such as public transit, ride-sharing and bicycling reduces transportation emissions, offers affordable options and demonstrates improvements in community design.

The provincial government will:

- 46- *Work to have 2,500 electric vehicles⁴ on the road in New Brunswick by 2020 and 20,000 by 2030.*
- 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.*
- 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.*
- 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.*
- 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.*
- 51- *Advance public transportation planning at the regional level to allow for route integration and improvements in access.*

Regulation of industry emissions

The provincial government is already implementing a regulated requirement for large industry to report its GHG emissions and to submit GHG management plans. The next step is to set emission limits for large industry and to require medium-sized industries to begin reporting and managing their emissions.

The provincial government will:

- 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.*
- 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.*
- 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.*

Reduced GHG emissions from waste

GHG emissions from the waste management sector in New Brunswick represent about five per cent of the province's total GHG emissions. There are three basic ways to reduce emissions from waste:

- waste prevention (such as packaging and food waste);
- diversion of organics and recyclable material from landfills;
- capture and reuse emissions from waste such as landfill gas.

4 Electric vehicles include plug-in electric passenger, fleet (such as taxis) and commercial (such as delivery) vehicles.

These measures could have significant impacts across multiple sectors, both within and outside New Brunswick, at relatively low costs, as they would reduce demand for raw materials, emissions from transporting and processing these inputs, as well as emissions from landfills. While all six of New Brunswick's active regional landfills are either equipped with landfill gas management systems or are in the process of having them installed, there remain additional opportunities for GHG emission reductions in the form of waste prevention and the diversion of organics and recyclable materials from landfills.

The provincial government will:

- 55- *Require all regional service commissions to increase the diversion of organic waste and recyclable materials from disposal.*
- 56- *Support further improvements in regional solid waste landfill gas capture.*

Reduced emissions from agriculture

The agriculture sector is an essential part of New Brunswick's economy and creates four per cent of its annual GHG emissions. Farmers are currently increasing their environmental awareness, including the subject of climate change, through their voluntary involvement in the Environmental Farm Plan (EFP). The EFP addresses things such as energy efficiency, management of livestock facilities, manure storage and handling, pasture management, soil management and nutrient management. Upcoming revisions to the EFP are expected to include an increased focus on climate change mitigation and adaptation. Reasonable steps can be taken to help farmers mitigate the impact of their operations through beneficial farm management practices. Many of these Best Management Practices have a side benefit, not necessarily known to the farmer, of reducing GHG emissions. For example, implementation of a nutrient management plan and installation of subsurface drainage will both reduce nitrous oxide emissions and good genetic selection to improve feed efficiency will help to reduce methane production from beef cattle. By looking at opportunities at the farm level, farmers will be able to improve efficiencies and reduce their impacts on the environment.

The provincial government will:

- 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.*

Carbon sinks and offsets

A carbon sink is anything that absorbs more carbon than it releases and can be a natural or artificial system. Increasing carbon sinks can be an important method of mitigating climate change by keeping some GHGs out of the atmosphere and offsetting emission reductions elsewhere. Land-use management decisions applied to forests and agricultural land can increase carbon storage by implementing measures such as conservation tillage, conversion of marginal agricultural lands back to forests, forest restoration and urban forestry.

There are two types of markets for carbon offsets: voluntary markets and regulated markets. In voluntary markets, specific protocols are generally less stringent on how the forest is managed or how the offsets are administered over time as compared to regulated markets. Regulated carbon markets are ones where more detailed and stringent protocols are in place to dictate how forests are required to be managed. Offsets sold into a regulated market tend to receive a higher price than voluntary offsets. Having a cap and trade system is not a requirement for selling carbon offsets.

The provincial government will:

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

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

Planning for smart, low-carbon development

Land-use planning can support the transition to a low-carbon economy by reducing GHG emissions in communities through smart growth oriented development patterns, and through tree plantings, green roofs and permeable surfaces. Urban form and spatial planning measures can also largely drive transportation emissions reductions and may also facilitate improvements to new building efficiency by driving more compact design. How we design our communities can also have a large impact on public health by promoting healthy built environments, healthy lifestyles and sustainable communities.

The provincial government will:

- 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.*
- 63 - *Provide incentives to promote smart growth (natural infrastructure, green buildings, low-impact developments) and sustainable community design.*
- 64 - *Incorporate GHG emission reduction considerations into lifecycle assessments of infrastructure projects.*
- 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.*

Adaptation to the impacts of climate change

GHG emissions remain in the atmosphere for many years. As a result, the trends in climate change can be expected to continue even with a targeted decline in GHG emissions. Early adaptation to climate change impacts is critical in avoiding much higher costs related to human health and safety, damage to communities and infrastructures and changes in natural resources.

Climate resilience is the ability to survive and flourish in the face of a changing climate. Climate change adaptation is a key means to achieving climate resilience, and is about making informed forward-looking decisions considering future climate conditions.

Examples of adaptation:

- trimming trees to avoid damage to power lines from ice and wind storms;
- protecting or moving buildings to avoid flood damage; and
- improving drainage systems in communities to handle extreme rainfall events.

A changing climate presents both risks and opportunities for New Brunswick's communities and resource sectors. In order to reduce the risks and take advantage of the opportunities, we must fully understand the challenges posed by a changing climate and present realistic approaches to addressing them. Adaptation will help to maintain and enhance our province's economic competitiveness, the well-being of New Brunswickers and resilience of communities.

Climate risks and adaptation planning can be comprehensively incorporated into provincial decision-making; however, while the provincial government has an important role to play in building New Brunswick's resilience to climate change, many of the most important decisions will be made at the local level. Community planners, prop-

erty owners, local governments, First Nations, infrastructure owners, businesses, community and environmental groups, and resource managers all need important climate and adaptation information and tools for guidance.

Understand climate change impacts

Measuring climate change and the impacts in New Brunswick as well as projecting future trends are essential to building resilience in our communities, provincial infrastructures and managing our natural resources. Buildings, roads and bridges, power lines, communications systems and drainage systems all need to be designed and built to withstand future climate conditions. Management of forests, agricultural lands and other resources requires reliable climate information.

Critical to this is a robust system of monitoring and information gathering of reliable data. For example, it is important to understand the causes, frequency, severity and consequences of flooding due to the increasing risk of high water levels and erosion along coasts and rivers.

The provincial government will:

- 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).*
- 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.*
- 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.*
- 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.*
- 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.*

Build climate-resilient infrastructure

Infrastructure plays a critical role in social, economic, and ecological well-being. It provides essential services to communities and businesses, including water, power, agriculture, hospitals and other health care facilities, schools, transportation networks, telecommunications, and protection from the elements. Climate change impacts can contribute to road, bridge, port, rail, and airport disruptions, and increased costs for infrastructure repair and maintenance. These disruptions in productivity, critical trade infrastructure, electricity generation, and supply chains would have far-reaching consequences for many economic sectors, services to consumers and businesses.

There is a strong case to be made for incorporating climate change considerations into all infrastructure decision-making. Significant dollars are spent annually on new and existing infrastructure by all governments and the private sector. Making these substantial, long-lived, investments resilient to climate change impacts saves costs in the long-term and provides opportunities for the implementation of innovative approaches. This includes consideration of different types of infrastructure (e.g., hard versus natural), as well as the design, location, operation, maintenance and decommissioning of infrastructure assets.

The provincial government will:

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

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

Support community adaptation planning

Adaptation at the community level means embarking on a systematic review of the predicted nature and scale of impacts to the community and their resultant vulnerabilities (e.g., potential flooding of a main street blocking access to a hospital). These can then be listed and ranked in order of priority according to the level of risk they represent. Solutions can then be identified in an adaptation plan.

Various actors in New Brunswick are already engaged in community adaptation planning. These early adopters have developed nodes of expertise and their experiences can be shared with others. NGOs play a critical role in New Brunswick in helping to guide communities through the adaptation planning process. Although there has been an increase in the number of communities that are engaged in adaptation planning, there is still significant work to be done to ensure that all communities are considering the impacts of future climate conditions and developing plans to address them.

The provincial government will:

- 76- *Ensure NGOs and local community partners are supported so they can continue to guide communities through the adaptation planning process.*
- 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.*
- 78- *Conduct climate change adaptation planning at a regional scale and empower regional service commissions to coordinate this exercise.*
- 79- *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 adaptation.*
- 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.*
- 81- *Collaborate with the cities to ensure that climate change vulnerability assessments and adaptation plans are completed by 2020.*
- 82- *Collaborate with the municipalities and regional service commissions to ensure that climate change vulnerability assessments and adaptation plans are completed for our highest risk municipalities by 2020.*

Adapt natural resources and agriculture

New Brunswickers rely heavily on natural resources such as trees, water, land, fish and wildlife and our agricultural resources – all of which are influenced by climate. Our economy is therefore particularly vulnerable to climate change.

There is increasing recognition of the value of natural infrastructure such as wetlands, floodplains, dunes, forested areas and natural buffers, in protecting communities and critical infrastructure in high risk areas such as along coastlines and in floodplains.

The provincial government will:

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

- 84- *Work with natural resources managers to ensure that climate change adaptation plans are completed by 2022 to address major climate threats.*
- 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.*
- 86- *Encourage future federal-provincial-territorial funding agreements to include a stronger focus on climate change.*
- 87- *Take measures to advance agricultural practices that promote soil health and reduce vulnerability to soil erosion.*
- 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.*
- 89- *Recognize the importance of ecosystems (e.g., wetlands, forests, soil, dunes, 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.*
- 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.*
- 91- *Develop guidelines for project proponents to ensure that future climate considerations are incorporated into Environmental Impact Assessment.*
- 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.*

Reduce climate-related hazards

Climate change is contributing to extreme and catastrophic weather events throughout much of Canada, including the likelihood of flooding, wildfire, drought, heat and wind.

Hazards and disaster risks have always been a concern; however climate change is driving the need to adapt to more intense and frequent events. Traditionally, responses to disasters have been reactive, but recent experiences have shown the benefit of investing in proactive and preventative measures.

Disaster risk reduction and adaptation efforts can complement one another to buffer society from climate-related impacts and better position communities to reduce and manage disaster impacts more broadly. Additionally, land-use planning is a powerful tool in helping to reduce the impacts of natural disasters, and can inform decisions about if and where to rebuild during disaster recovery.

The provincial government will:

- 93- *Ensure provincial disaster financial assistance programs and insurance products are responsive to climate change.*
- 94- *Consider future climate conditions when making decisions about replacing or repairing infrastructure following disasters (“build back better” or relocate).*
- 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.*
- 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.*
- 97- *Examine the relationship between watershed condition, land use and peak flow events associated with extreme precipitation.*

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

Reduce climate change impacts on public health

Climate change is increasing the risks to the health and well-being of New Brunswickers. These risks can be mitigated by focusing on both prevention (e.g., supporting research and building capacity and awareness to promote health and well-being and efforts to reduce risks), as well as effective responses to climate impacts (e.g., providing health care services and interventions, such as extreme heat and forest fire smoke alert warning tools). While there is already work underway, in New Brunswick it will be important to build on and expand these efforts.

The provincial government will:

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

Economic opportunities

An integrated, economy-wide approach to create jobs and drive innovation across all sectors and regions is required to grow New Brunswick's economy, achieve our GHG emission targets and improve overall environmental performance. There are significant financial opportunities that exist through reducing energy costs and the potential for reinvesting the savings into New Brunswick's economy.

Technological innovations and advancements are critical to accelerating the transition to a low-carbon economy. Despite a growing global clean technology sector, New Brunswick faces challenges in low-carbon innovation, particularly with respect to commercialization of the technologies.

There will be opportunities for certain sectors as the climate changes and New Brunswick must prepare to take full advantage of these, specifically as they relate to the agriculture and tourism sectors. New Brunswick is leading in the adaptation field in many ways and there may be opportunities to market our tools and approaches more broadly.

The provincial government will:

- 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.*

- 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.*
- 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.*
- 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.*
- 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.*

Accountability and reporting

Accountability through measurement, reporting and verification of progress is becoming an important element in climate change action plans and is growing in importance in international agreements on GHG emission reductions. Reporting allows the province to track success in adapting to climate change and to determine the effectiveness of GHG emission reduction initiatives.

Most measures of progress in adapting to the impacts of a changing climate tend to focus on short-term implementation measures such as the number of adaptation or vulnerability plans completed. The true measure of progress in adaptation is whether something has increased the adaptive capacity of a community or the province. The latter is more complex and a longer term objective. The provincial government will continue to report on short-term measures while over the long-term strive to develop a more complete measure of adaptive capacity.

An understanding of the province's energy consumption and GHG emissions profile is necessary to measure progress in GHG emission reductions and to assess opportunities for further reductions.

The provincial government will:

- 110 - *Continue to release annual progress reports on implementation of the measures identified in this action plan and in the annual work plans.*
- 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.*
- 112 - *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.*
- 114 - *Encourage the management and reporting of GHG emissions by local governments and businesses.*
- 115 - *Report on the number of communities with completed climate change vulnerability assessments and adaptation plans and on progress toward implementation.*
- 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.*

Funding for climate change

Dedicated funding for climate change initiatives is essential to ensure sustained, ambitious and collaborative action to address climate change. Funding will be required to address adaptation and mitigation initiatives.

The provincial government will:

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; and*
- b - ensure expenditures are done in accordance with government's climate action priorities;*
- c - consider all existing provincial and federal funds and opportunities to further leverage the climate change fund.*

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

Going forward

Our government is committed to fulfilling its moral obligations to help combat climate change, while ensuring we are positioning our province for economic growth in the short-, medium- and long-term. The select committee we appointed has listened to New Brunswickers, and having considered their advice, we are now delivering a plan for clear results.

Transitioning to a Low Carbon Economy – New Brunswick's Climate Change Action Plan is our plan to reduce emissions and build resilience by adapting to a changing climate, while at the same time growing New Brunswick's economy. It will help us transition to a strong, more diverse and competitive economy, with new jobs, technologies and exports, while also sustaining families and communities.

The Plan is a commitment that New Brunswick will do its part on climate change by way of a made-in-New Brunswick approach to meeting our own particular needs. The significant work that has been undertaken by communities, individuals and governments are reasons for optimism in the face of the challenge presented to us by climate change and the broad scope of actions required. The expanded efforts begin now and will continue over the long-term. It will take time and there will be challenges but with the participation of all New Brunswickers, we can achieve our commitments.