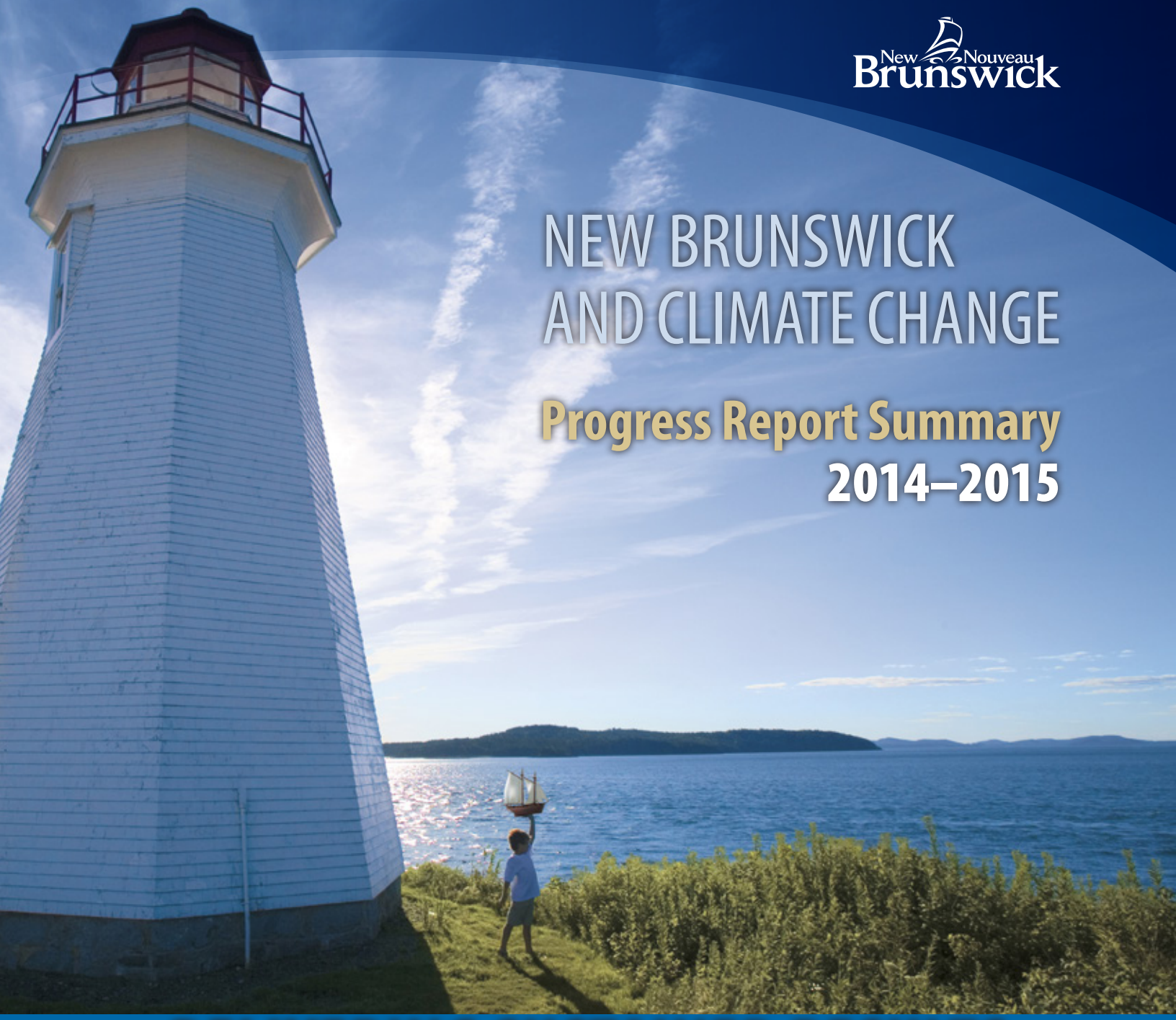
New Nouveau Brunswick

# NEW BRUNSWICK AND CLIMATE CHANGE

## Progress Report Summary 2014–2015



# DELIVERING SUSTAINED RESULTS

NEW BRUNSWICK CLIMATE CHANGE ACTION PLAN 2014–2020

NEW BRUNSWICK AND CLIMATE CHANGE

# Delivering sustained results

Climate change represents an urgent and potentially irreversible threat to our communities and our natural environment. We recognize the enduring benefits of ambitious and early action; steps taken today to fight climate change will help us become more resilient, reduce our greenhouse gas emissions and secure a sustainable economic future.

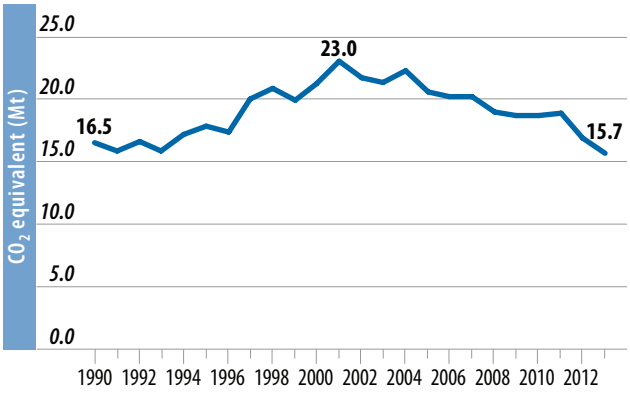
Since releasing New Brunswick's second *Climate Change Action Plan* in the spring of 2014, the province has continued to make progress in meeting the commitments and targets described in the plan, by taking steps to improve our resilience to the impacts of our changing climate and by further reducing greenhouse gas emissions with sustained economic growth.

This report highlights progress towards these goals for the period of 2014-2015. You will note, the greenhouse gas (GHG) data presented in the report is for 2013, which is from the most recent National (GHG) Inventory Report.

## Reducing Greenhouse Gas (GHG) emissions

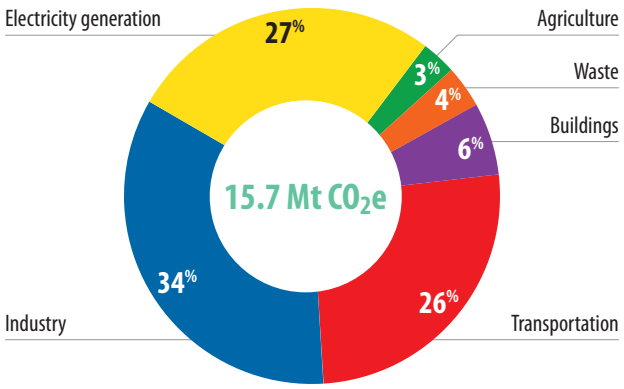
Figure 1 below shows New Brunswick's annual GHG emissions from 1990 to 2013. In 2013 GHG emissions from all sources was 15.7 Megatonnes (Mt) of carbon dioxide equivalent ($CO_2e$), slightly more than two per cent of the Canadian total. However, on a tonnes per capita basis, New Brunswick remains the third highest in Canada as this equates to 21 tonnes of $CO_2e$ per capita in 2013. Emissions reductions were attributed to energy efficiency and switching to cleaner fuels in buildings, transportation, agricultural practices and waste management. Figure 2 shows a breakdown of those emissions.

*Figure 1: New Brunswick annual GHG emissions*




Source: *2015 National Inventory Report*, Environment Canada

*Figure 2: New Brunswick GHG emissions in 2013*

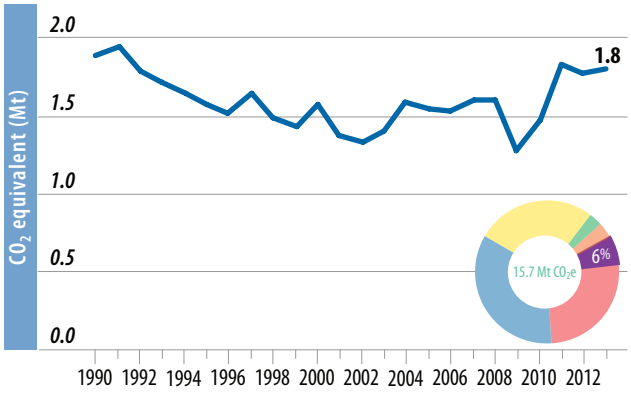



Source: New Brunswick Climate Change Secretariat

## Energy efficiency and renewable energy — residential and commercial buildings

Figure 3 below shows that total emissions for the commercial and residential building sector was 1.8 Mt in 2013 or 0.1 Mt lower than 1990. Energy Efficiency savings have been somewhat offset possibly due to less participation in programs and growth in new commercial and residential building construction.

*Figure 3: Buildings*




Source: New Brunswick Climate Change Secretariat

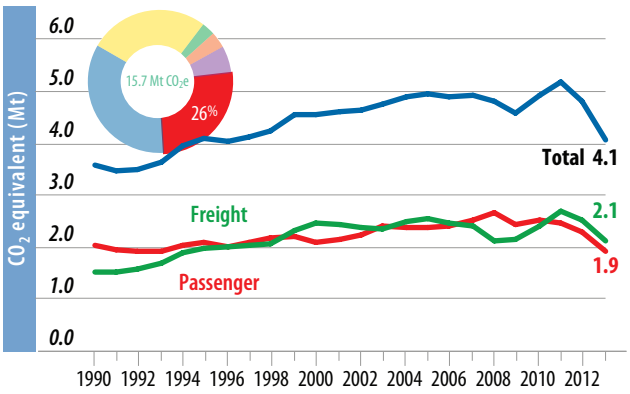
### *Snapshot of progress during 2014–2015*

- During the progress period of this report over 3,300 existing homes participated in New Brunswick's residential energy efficiency programs with an associated reduction in annual greenhouse gas emissions of over 15,000 tonnes.
- During this progress period over 60 buildings completed participation in the New Brunswick commercial energy efficiency program with associated reductions in annual greenhouse gas emissions of over 2,300 tonnes.
- The largest solar array in New Brunswick was installed on the Engineers and Geoscientists New Brunswick's (APEGNB) office building in Fredericton. The 60 solar panels are connected to the NB Power grid and a net meter is installed to allow two-way flow of electricity, where surplus power can be supplied to NB Power's grid. APEGNB has plans to further expand the solar installation and reduce their energy bill even further in the future.

## Transportation

Figure 4 below shows the estimated GHG emissions from transportation in New Brunswick for the period of 1990 to 2013. It can be seen that for this period, although the total GHG emissions from transportation have increased by 0.5Mt since 1990, emissions have declined since 2011. Total emissions from the transportation sector were 4.1 Mt in 2013 which include road passenger (1.9 Mt) and road freight (2.2 Mt).

*Figure 4: Transportation*




Source: New Brunswick Climate Change Secretariat

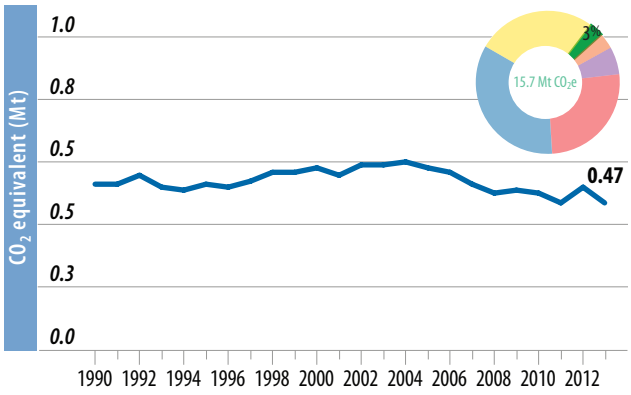
### *Snapshot of progress during 2014–2015*

- The government's Vehicle Management Agency has commenced gathering data on government fleet vehicles to determine future electric vehicle (EV) suitability. The outcome of this initiative may contribute to increasing the market share of EVs in NB.
- The New Brunswick Electric Vehicle Advisory Group (NBEVAG) continued to move forward with an approach to accelerate the market share of EVs in New Brunswick. With support from the Environmental Trust Fund, the NB Lung Association (a member of the NBEVAG) is undertaking an EV Marketing and Outreach strategy for NB.
- In 2014-15 there were approximately 50 plug-in electric vehicles in New Brunswick.

## Agriculture

Figure 5 demonstrates that emissions from agriculture which are primarily from livestock management have been declining since 2006 and are currently 0.5 Mt, which is attributed to improved livestock management practices.

*Figure 5: Agriculture*




Source: New Brunswick Climate Change Secretariat

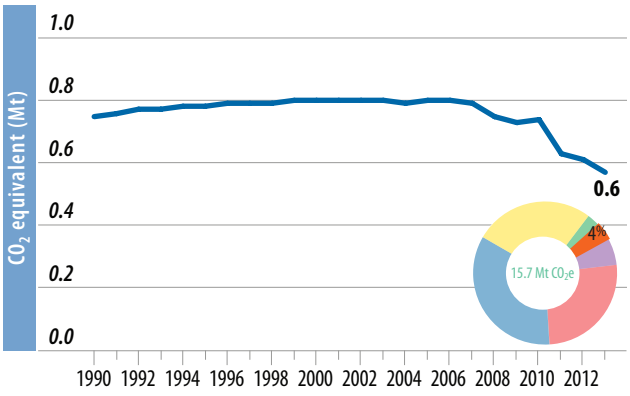
### *Snapshot of progress during 2014–2015*

**BioNB, New Brunswick's bioscience agency, awarded Laforge Bioenvironmental with the New Brunswick Bioscience Achievement Award in October, 2015. The Laforge facility generates clean, renewable energy and a nutrient rich organic fertilizer, while reducing landfill waste and greenhouse gas emissions annually by approximately 22,000 tonnes of CO2e per year. Laforge operates two anaerobic digesters on a dairy farm in Saint-André, New Brunswick, fuelled only with manure and organic food waste from regional food processors. The resulting digester biogas is captured and used as fuel to generate electricity. The two plants generate enough energy (1.6 MW) to power their entire dairy operation and 1,000 homes.**

## Waste management

Figure 6 demonstrates that emissions from waste management have been declining since 2007 and fell below 0.6 Mt in 2013. This decline is attributed to landfill gas management plans implemented by the local solid waste commissions. Some of New Brunswick's landfills are not only capturing methane from the decomposition of organic waste, but are also utilizing the gas to generate electricity, and further reducing GHG emissions. Additional reductions are possible at solid waste sites.

*Figure 6: Waste management*




Source: New Brunswick Climate Change Secretariat

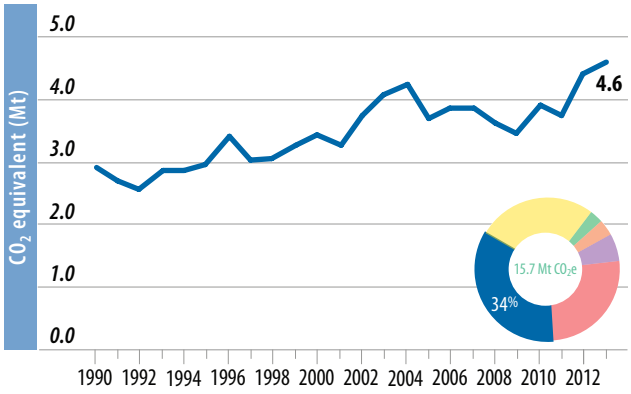
### *Snapshot of progress during 2014–2015*

**All six landfills in the province have landfill gas management systems. Currently three landfills have generators to produce power with a flare system as a backup. The other three regional landfills have flare systems and one landfill is currently in the process of acquiring a generator in order to commence producing power.**

## Industry

Figure 7 below shows the estimated GHG emissions from industry in New Brunswick for the period of 1990 to 2013. Emissions from large industrial facilities have continued to rise and are currently 4.6 Mt. Although industry has implemented some energy efficiency measures, the impact of lower fossil fuel prices may result in an increase in emissions in the short term.

*Figure 7: Industry*




Source: New Brunswick Climate Change Secretariat

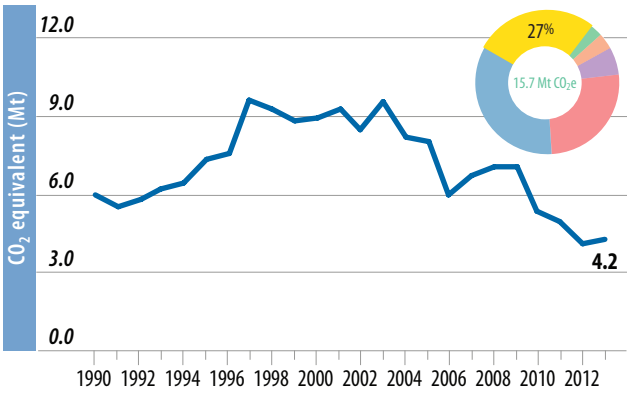
### *Snapshot of progress during 2014–2015*

**Beginning in October 2015, pursuant to the Air Quality Regulation of the Clean Air Act, the province implemented a requirement for large industry (emitting 50,000 tonnes per year or more of GHGs) to commence reporting their emissions to the Province. It will also require industry to begin preparing Greenhouse Gas Management Plans in accordance with the Department of Environment and Local Government's Guidelines. The first plans will be submitted in late 2016. Implementing GHG management plans is expected to reduce industrial emissions by 7 to 10 per cent**

## Electricity generation

Figure 8 depicts electricity generation emissions from 1990 to 2013. In 2013, electricity generation emissions were 4.2 Mt. 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. Further reductions are expected through NB Power's reduce and shift demand (RASD) programs as well as the 40% renewable energy (75% non-emitting) requirement by 2020.

*Figure 8: Electricity generation*




Source: New Brunswick Climate Change Secretariat

### *Snapshot of progress during 2014–2015*

- **In April 2015 Efficiency New Brunswick initiatives and programs were moved into NB Power. This is an important part of realizing the utility's Reduce and Shift Demand (RASD) target of 1800 GWh savings by 2035.**
- **Aspects of the early rollout of the Smart Grid development included pilot projects with customers and lab testing of connectivity with devices such as smart thermostats, and involved a 50-home pilot program that commenced in October 2015. When complete, the Smart Grid will play a major role in enabling better use of energy in New Brunswick through supply management; storage optimization and electrification of transportation.**

### Innovation and economic development

*Snapshot of progress during 2014–2015*

- A new economic development model—Opportunities NB— was launched in 2015 and has greater flexibility in supporting innovative solutions to environmental issues.
- Many local businesses recognize that embracing climate change in their business plans can often lead to becoming more competitive in global markets. In 2015, Opportunities NB was involved in investing more than $1 million in innovations that involved cleaner technologies, energy, smart grid and climate adaptation projects.

### Sequestering carbon

*Snapshot of progress during 2014–2015*

- The Department of Natural Resources continues to work with the National Forest Sinks Committee and the Sinks Committee Carbon Team. The intent is to determine the Crown Land carbon footprint (baseline) and develop an appropriate carbon model for NB that would then allow scenario analyses and consideration of future options.
- In 2015, the Province commenced an examination of opportunities to account for GHG savings from carbon sinks.

## Enhanced resilience to climate change

Significant advancements toward a greater resilience to climate change have already been made. Several communities in New Brunswick have conducted vulnerability assessment studies to address flooding, erosion, groundwater protection and sea level rise. Emergency and environmental preparedness, as well as resiliency planning has increased due to tools, guidance and better forecast measures.

### Data and research into climate change impacts

Measuring climate change and predicting future climatic trends in New Brunswick is essential to building our resilience and reducing our vulnerability. Conducting research and gathering essential data will help ensure New Brunswickers have the information they need to incorporate future climate change in their decisions and activities.

*Snapshot of progress during 2014–2015*

- The Province has continued its collaboration with the other Atlantic Provinces on the topic of climate change adaptation by participating in the second phase of the Atlantic Province's Regional Adaptation Collaborative (RAC). The purpose of RAC II is to increase adaptation awareness and capacity at the regional level, and is the first phase of engagement with communities.
- The Province continued to acquire digital elevation data (e.g. LiDAR) to assist in community adaptation planning efforts and also to support the development of a Provincial wet areas mapping coverage.
- The Province worked in cooperation with NB Power to obtain the most updated climate data for the region (IPCC AR5). This data will be available in the future on the ACASA (Atlantic Climate Adaptation Solutions Association) maps website at www.acasamaps.com.

## Risk and Opportunity Assessments

Climate risks and adaptation planning can be comprehensively incorporated into provincial and community decision-making. Community planners, property owners, local governments, First Nations, infrastructure owners, businesses, and resource managers all need important climate and adaptation risk and opportunity assessment tools and results in order to make informed decisions.

### *Snapshot of progress during 2014–2015*

- **The Province has continued to fund numerous projects under the Environmental Trust Fund (ETF) to examine local vulnerabilities from the impacts of a changing climate. Among the ETF projects were the cities of Bathurst and Tracadie, as well as other municipalities across the Province.**
- **Under the Atlantic Climate Adaptation Solutions Association (ACASA) and in collaboration with the Atlantic Provinces and research institutions across the Atlantic region, two projects were undertaken: 1) a Cost-Benefit Analysis of adaptation options and 2) the development of a Decision Support Tool designed to assist coastal communities in adapting to climate change.**

## Mainstreaming adaptation

Identifying unique vulnerabilities to the effects of climate change is the first step in adaptation at the local and provincial levels. Once vulnerabilities have been identified, plans and strategies can be devised to reduce their risk proactively.

### *Snapshot of progress during 2014–2015*

- **The Climate Change Secretariat hosted public information and education sessions to showcase climate change adaptation initiatives such as; the City of Moncton's Climate Change Adaptation Plan, and New Brunswick's updated sea-level rise projections.**
- **The Climate Change Secretariat has continued dialogue with infrastructure owners such as NB Power and the Department of Transportation and Infrastructure to identify adaptation opportunities and promote the need to incorporate future climate considerations into every day decision making in order to reduce risk.**
- **The Coastal Zone Research Institute in collaboration with the Acadian Peninsula Regional Service Commission and supported by the Climate Change Secretariat and the Environmental Trust Fund, initiated a regional approach to climate change adaptation planning.**
- **The Climate Change Adaptation Collaborative of the New Brunswick Environmental Network, supported by the Climate Change Secretariat and Environmental Trust Fund, held workshops in New Maryland and the Acadian Peninsula to bring together practitioners to enhance knowledge exchange on the topics of climate change adaptation and mainstreaming.**

## Government leading by example

Government is committed to showing leadership in reducing GHG emissions from the public sector's operations. The *Green Building Policy* and the *Green Vehicle Policy* are examples of the province's commitments to lead by example.

### *Snapshot of progress during 2014–2015*

**Public buildings:**

- As of October 2014, $12.8 million has been invested in the government's Energy Efficiency Improvement Program, reducing utility costs by about $2 million and GHG emissions by 17,500 tonnes annually.
- The province is on track to deliver nearly 50 energy retrofit projects for the year 2015- 2016.
- New Brunswick buildings used 41,700 tons of hog fuel annually. This amounted to approximately $4 to $5 million in fossil fuel avoided cost and contributed to reducing GHG emissions by approximately 21,000 tonnes annually.

**Inter-jurisdictional partnerships:**

- In August 2015, The New England Governors and Eastern Canadian Premiers, by resolution, agreed to reduce greenhouse gas emissions by 35 to 34 per cent below 1990 levels by 2030. Details as to how this regional target will be achieved will be determined beginning in 2016 and presented to the NEG-ECP at the 2016 meeting.

## Partnerships and outreach

Collaboration with government has been essential for addressing climate change adaptation and emissions reduction. Many communities, industries, businesses, non-profit organisations and individuals have contributed to climate change efforts, in part with support from the New Brunswick Environmental Trust Fund.

### *Snapshot of progress during 2014–2015*

- The Gaia Project, a group committed to empowering youth to make informed decisions about energy and the environment, reached close to 20% of total New Brunswick students since being founded in 2009. Their 2014-2015 curriculum based projects included: waste audits in elementary schools; energy and waste audits in middle schools; and environmental impact and lifecycle assessments in high schools. Sixty-two projects were delivered reaching 1,500 youth (65% in francophone school districts, 35% in anglophone; 53% high school, 5% middle school, and 42% elementary school projects). The Gaia Project also brought students their Mobile Energy Centre, their first Sustainability Summit and their Electric Vehicle Roadshow.
- EOS Eco-Energy coordinates a variety of research, action and education projects that relate to energy sustainability and climate change in the Tantramar region of southeast New Brunswick. Among their many successful projects was the solar panel bulk purchase program which included an information session, site assessments, purchase and installation of 61 (255watt panels) which will achieve their goal of 15.6 Kw of solar energy availability.

## Measuring and reporting progress

Measuring the province's energy consumption and emissions is important in allowing the continued tracking of progress in GHG emission reduction and identifying opportunities for continued reductions.

### *Snapshot of progress during 2014–2015*

**Beginning in October 2015, large industrial emitters (emitting 50,000 tonnes of $CO_2e$ or more) were required, through an amendment to their Air Quality Operating Approvals, to report their facility GHG emissions to New Brunswick using Environment Canada's Single Window Reporting System. Reporting will commence in 2016.**

# Moving forward

New Brunswick will continue to contribute to regional and national initiatives to address climate change and to track progress in reducing GHG emissions and increase resiliency to climate impacts.

The Climate Change Secretariat coordinates the ongoing activities of the Interdepartmental Committee on Climate Change and the provincial government's commitments with respect to the Climate Change Action Plan.

Communities, industries, businesses, non-government organizations and individuals have contributed to our climate change efforts. These ongoing partnerships and collective efforts are essential to the success of the plan.

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