

# Presentation to the New Brunswick Select Committee on Climate Change

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### Atlantica Centre for Energy

#### Introduction

The province of New Brunswick's discussion guide, *Building a Stronger New Brunswick Response to Climate Change* is a well thought out paper on our challenge ahead and various paths that can be explored.

The government of New Brunswick has identified the importance of our energy and resource sectors and the importance of economic development. This new climate plan must align economic development with environmental stewardship.

To address this challenge, we must look to other regions that have realized success in reducing their GHG emissions, while simultaneously stimulating their economies. Sweden is held as an example of reducing its GHG emissions by 23%, yet realizing an increase in its GDP by 58% during the same period.

As a collective of countries we have tackled the global issues of acid rain and a hole in the ozone layer. Now our global challenge is to reduce the world's collective Green House Gas (GHG) emissions. While formidable, it is not insurmountable.

We have the opportunity to assist our traditional industries to adapt and compete in a low-carbon economy, while stimulating a new "clean-tech" sector. Indeed in other parts of Canada an impressive number of new ventures have been created resulting in the TSX hosting more clean-techs than in any other country's exchange. This new "eco-preneurship" can be embraced here as well.

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While keeping in mind this is a generational shift, and will lead us to reaching our targets of 2050, we must scale our plan so that it is implementable over a duration of more than 30 years.

New Brunswick's emissions peaked at 22 mega-tonnes (mt), yet through emission reduction efforts by industry and NB Power, the province's emissions today are roughly the same as in 1990 (16 mt).

Going forward, a 30 year generational transition requires parallel paths of carbon and non-emitting energy. We must continue to use, but reduce, carbon fuels while at the same time increase the availability and affordability of non-emitting energy to reach our 2050 goals of eliminating a further 10 mt.

Emissions could be reduced to meet targets by shutting down all industry (and the jobs they provide), however that is not sustainable nor prudent. A balance must be identified to reach long-term emission targets while still maintaining and adding employment for our citizens.

Existing industry needs to innovate and transition. Carbon based fuels will continue to be used in parallel while the transition phase introduces additional non-emitting fuel sources and new developments are commercialized. It is not a "one or the other", but rather a "both". We will continue to reduce the use of, and emissions from, carbon fuels while we increase the adoption of lower and non-emitting fuels.

We encourage the committee to take the necessary steps to develop recommendations that lead to a comprehensive, well thought out plan. The implications are critical to our economy.

As the plan is implemented and results are monitored, be mindful that emissions reduction results may be sporadic and not linear. Give initiatives time to take hold.

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It may also be necessary to wait while other regions and federal policies develop so that ours is consistent. There is the possibility that other governments and even large organizations such as Amazon, Walmart, Home Depot, etc. will dictate thresholds for sustainable content, forcing compliance without regulatory legislation.

The Atlantica Centre for Energy has studied various approaches across Canada. Based here in New Brunswick, we understand the unique challenges our small, widely dispersed population faces.

We need a policy that protects the vulnerable in society; allows existing industries time to innovate and transition; acknowledges gains already achieved; encourages behavioural changes to reduce emissions; stimulates innovations in efficiency; all without overly burdening an already energy poor populace.

Revenue generated as part of climate change policy must directly fund innovation and the adoption of new processes and efficiency technologies. This revenue can assist current industry while stimulating new investments in our province. We must continue to be competitive with the rest of the world.

The climate change action plan must be unique for New Brunswick, yet consistent with other provinces in this region. It must look at what advantages New Brunswick has relative to other Atlantic provinces. Newfoundland and Labrador has offshore oil and gas, plus a large hydro-electric plant under construction; Nova Scotia has offshore oil and tidal energy under development, plus geothermal; PEI has wind power generation; New Brunswick has natural gas formations, nuclear power, wind, hydro and geothermal potential. Build on our existing strengths.

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Inputs from a variety of stakeholders have been presented to the committee and we encourage you to delve deeper into them to determine the net results (reduced emissions versus financial implications of implementing) of each.

By developing a plan that includes near-term, mid-term and long-term goals, New Brunswickers will be presented with a clear path towards reduced emissions, that rather than crippling the economy, may in fact move it forward. In the end the Climate Action Plan should be implementable, provide guidelines and incentives to reach our collective goals.

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## Ten Tenets for Development of Climate Change Action Plan

The Atlantica Centre for Energy has identified high level principals that should form a basic outline of policy for New Brunswick.

Critical to New Brunswick's climate action plan are ten basic tenets:

- In devising and implementing carbon emission reduction initiatives, do not cripple the economy of the province.
- Create policies that do not exacerbate New Brunswickers current energy poverty, which stands at 20.6% of household expenditures versus 7.9% nationally.
- Identify and acknowledge pro-active reductions to carbon emissions that have already been realized well ahead of the legislated requirement to do so by building owners, industry and electrical generation. Don't penalize these early adapters while others catch up.
- Be mindful that New Brunswick's foundational industries are energy intensive and trade-exposed, their sensitivity to compliance costs are acute.
- Continue to collaborate on a regional response (Atlantic Canada and New England) to climate change.
- Develop a generational plan that includes a phased-in approach and begins with educational programs and voluntary actions.
- Financial incentives and dis-incentives should be directly linked to reducing emissions, through using less energy and reducing the emissions of the energy used.

- Acknowledge the absolute quantity of New Brunswick's GHG emissions (15mt), in particular as they compare to Alberta (267mt), Ontario (171mt) and Quebec (83mt).
- Incorporate New Brunswick's small population density into the action plan. A small, widely dispersed population poses unique challenges.
- Understand the financial commitment to providing non-emitting energy while it remains economically costlier than carbon fuels.

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## Appendix A

### Summary of suggestions for New Brunswick's response to climate change

#### Government Leadership

1. Progressive climate change policy requires a long-term planning timeframe, with targets, actionable measures and annual feedback. The Select Committee should look at strategic ten-year goals that are measurable and set up a feedback process to ratepayers. Tactical goals can be in five-year increments with annual feedback on progress.
2. Although there is a “rush” to produce a plan, it should be thoughtful, comprehensive and inclusive. While it may set targets, it should not be hastily compiled to meet a date that compromises our collective objectives.
3. Most effective, implementable plan may be a “hybrid” of ideas, spaced out over the target date of 2050.
4. The climate change plan must be financially sustainable – to residential and industrial sectors – a slow introduction, allowing innovation to take hold with larger gains later in the target time-line.
5. New Brunswick requires an Energy Plan that sets out actionable ways to reduce energy use and increase energy efficiency. Reduced energy use will reduce energy emissions. Most emphasis should be on eliminating energy use – a flexible, demand-side management approach that has the highest payback per investment.

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6. As part of a program introduction – voluntary measures should continue, with financial and regulatory incentives following in subsequent phases. E.g. Irving Oil, JD Irving Ltd. and others have voluntarily reduced emissions over time without being legislated to do so.
  7. Align environmental stewardship with economic incentives. The “greener” the company, the more incentives they receive.
  8. Incorporate renewable energy as requirement of government funding of economic incentives e.g. renewable energy (solar) required in marijuana growing operations that accept government incentives. Government grants could be contingent on carbon-neutral operations.
  9. The Federal low-carbon economy fund has allocated \$2 billion for 2017 (and \$100 million in 2016). New Brunswick should budget part of its climate change initiative on accessing these funds.
  10. New Brunswick should grant exemptions from industries already established in other province and territories. E.g., if New Brunswick were to create petrochemical plants, we would be penalized for increased emissions, whereas Ontario and Quebec has a thriving sector.
  11. The provincial government must demonstrate leadership and commitment to renewable targets. Lead by example – set measurable targets for reductions from government vehicle fleet (trucks, plows, cars, buses, etc.) and buildings.
  12. Although reduction targets are measurable, they do not reflect the relative amount of emissions from Alberta and ON. Huge (and costly) reductions in New Brunswick will not be significant on a national scale.

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13. Collaborate on a regional basis with other Atlantic and New England jurisdictions. Aggregation of electrical generation will help each province/state assist each other to make non-emitting energy accessible and will result in fewer regional emissions.
  14. The New England Governors and Eastern Canadian Premiers (NEGEC) agreement includes targets for 2020, 2030 and 2050. An interim 2040 milestone should be set.
  15. New Brunswick has a unique characteristics versus other provinces in Canada that should be considered in an action plan:
    - i. A cold climate, (requires higher energy use for heating vs BC)
    - ii. A small population that is dispersed geographically
    - iii. Predominately single-family housing vs high density
    - iv. lack of public transit
    - v. industry that is both energy intensive and trade-exposed
    - vi. energy poverty at over 38% including transportation fuel
    - vii. total emissions that pale relative to Alberta and Ontario
  16. A measure of “Energy Poverty” (10% or more of household expenditures pay for energy) should be part of an emissions reduction plan. Atlantic Canada: 20.6 % of households are already in energy poverty (versus 7.9% nationally). Atlantic Canada is at 38.5% when gasoline is factored in.
  17. There is no mention of air, rail and marine emissions. Should transportation emissions at airports, marine ports and emissions from rail transport be include in plans? Emissions from air travel in, and over, our air space and in our waters and over our rails contribute to GHG as do over-the-road emissions. Assess the impact of the competitiveness of New Brunswick goods due compliance costs applied to air and marine cargo.

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18. There has been no discussion of geothermal. Where our province is surrounded by water, and has abandoned mining shafts, geothermal energy is a viable alternative.
  19. If a carbon tax is implemented at some point, it should be funding innovation and implementation of emissions reductions, including efficiency programs. It should not be directed to general revenue (e.g. alcohol and cigarette taxes).
  20. Assess the impact on the New Brunswick fisheries and farmers if marine diesel and transportation diesel is to be financially penalized.
  21. New Brunswick should financially quantify its commitment to renewable energy by calculating the cost of converting to renewable energy. Lay-people may support renewable energy until they get the price tag. E.g. Tidal energy is purchased at \$0.65 per kW and sold for \$0.12 per kW to residential ratepayers; or converting Belledune to a lower-emitting fuel would be costly to ratepayers.
  22. Financing programs can be introduced to incentivize solar, heat pumps and other renewable capital costs. This could be in the form of property tax credits or utility financing, as examples.
  23. Encourage community-led electrical generation for local buy-in and participation.
  24. There will be no demonstrable reduction in emissions if a low-emitting alternative is not available. E.g. to penalize combustion vehicles and not offer mass transit, bike, and walking alternatives will not stop vehicular transit. As well, if a network of charging stations is not available, people

will not switch to e-vehicles. A comprehensive public transit system for inter- and intra-city commuting should be created, including vehicles using CNG, propane or other low-emitting fuel, and light rail.

25. Lifecycle emissions of creating renewable energy and storage should not be overlooked. A complete emissions record should be calculated to compare emitting fuels to non-emitting sources.
26. NB Power has fuel diversity which is an important part of energy security and competitive supply. It reduces reliance on any one energy source or supplier. Price stability requires diversity of supply and less reliance on imports for other energy sources too. Indigenous sources of supply are critical, including natural gas. Energy import dependency is an economic vulnerability. New Brunswick is exposed to volatile energy markets for heating, transportation and industrial processing.
27. Reliable, affordable and consistent energy is a requirement of our North American lifestyle. Maintaining predictable and stable energy rates (without violent swings) are important to both the residential and industrial bases.

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## Adaptation and Mitigation (Reduce/Alternative)

28. Roll-out the implementation of Smart Grid, demand-side management technology.
29. Virtual technology can be harnessed to reduce emissions associated with education and business sectors. More learn-from-home and work-from-home opportunities can be created. Educational institutions can reduce their building footprints (and associated heating/lighting/commuting requirements) by offering greater access to e-learning. In addition, education in rural areas can have greater access to virtual classrooms through greater deployment of technology such as on-line books, electronic assignments and web-enabled classrooms.
30. Institute further flex working hours to reduce peak electricity demand periods.
31. As vehicles transition from gasoline and diesel to electricity, this will increase the overall demand for electricity. E-vehicles will reduce transportation emissions, but increase electrical generation emissions. A strategic network of charging stations for e-vehicles should be part of a comprehensive energy plan.
32. Buildings currently heating with fuel oil will eventually use non-emitting energy such as heat pumps and solar. This should be factored into electrical generation emissions planning.

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33. Commercial and residential buildings should have incentives for heat pumps, led lighting, energy efficient appliances, and other energy efficient systems.
  34. What is New Brunswick's plan to phase out coal and pet coke? It must factor in the cost of converting to a lower emission fuel versus the impact on jobs of decommissioning generating plants. Converting to lower emitting input fuels may be a less drastic alternative to closure. New Brunswick and Nova Scotia pay the highest costs for natural gas in North America, yet its use should be encouraged as an efficient burning, low-emitting fuel. E.g. if Coleson Cove were to have fuel switching capability (as does Tufts Cove in Nova Scotia), it could emit fewer emissions. This would be costly unless the province is able to source lower-priced natural gas.
  35. Additional large impact electrical usage should be factored into GHG emissions. New pumping stations for pipelines and marine terminals, and thousands of electrical vehicles will be using electricity generated from carbon in some regions— if the electricity used to charge them is generated from a carbon fuel, the savings are minor.
  36. Create a seedling tree planting program for all New Brunswickers, in particular in urban areas.
  37. Incorporate carbon dioxide sequestration in land use planning.
  38. Agriculture sector should capture emissions from manure ponds using existing technology developed in New Brunswick for use as bio-fuel.
  39. Landfills and waste management facilities should be using emissions as a fuel source, and waste-to-energy systems, successfully operating in parts of

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Europe, should be considered to avoid additional land requirements and reduce existing land footprints. Smaller and fewer landfills will also generate less fugitive emissions. Today, only one percent of Sweden's waste goes to landfills: 51 percent is recycled and 49 percent is input at waste-to-energy facilities.

40. Experts presenting to the Select Committee have stated that climate change has produced a warming effect. Studies referenced focus on higher summer temperatures. Some analysis should also examine the warming of winter temperatures and reduced heating degree days. A three degree warmer winter will reduce energy usage (and emissions) during the winter months in New Brunswick.

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## Appendix B      Glossary Suggestions

41. Define terms to avoid conflicting interpretations – e.g. “Revenue Neutral”. At one forum session attended by multiple stakeholders, five vastly different definitions were presented.
42. Include specific numbers for targets in addition to percentage description of reduction targets, e.g. 6.5 million tonnes (6.5 mega tonnes) versus “35 – 45 percent reduction from 1990 by 2030”.
43. The term “non-emitting” energy should be used as an inclusive term, rather than “renewable” energy. While renewable energy typically does not emit GHGs, other non-emitting technologies also do not emit GHGs – both lead to reduced emissions. (e.g. – hydrogen, high incineration, nuclear, etc.).
44. “Fossil fuel” is a misnomer (fossils are hardened organics, fuels are liquid and gaseous organics).
45. Presenters with anecdotal information should provide their sources. Committee members (and the public) should have access to review studies referenced (e.g. “solar energy provided more jobs than oil and gas in 2015”).

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## Appendix C      Source Guide

- FRASER INSTITUTE
- ENVIRONMENT AND CLIMATE CHANGE CANADA
- NATURAL RESOURCES CANADA
- TORONTO STOCK EXCHANGE
- STATISTICS CANADA
- NATIONAL ROUNDTABLE ON THE ENVIRONMENT AND THE ECONOMY
- EMERA INC.
- NB POWER
- DEPARTMENT OF ENERGY AND RESOURCE DEVELOPMENT – NEW BRUNSWICK
- DISCUSSION GUIDE: BUILDING A STRONGER NEW BRUNSWICK RESPONSE TO CLIMATE CHANGE, GOVERNMENT OF NEW BRUNSWICK
- NEW BRUNSWICK DEPARTMENT OF ENVIRONMENT AND LOCAL GOVERNMENT, GUIDELINES FOR GREENHOUSE GAS MANAGEMENT
- NEW BRUNSWICK CLIMATE CHANGE ACTION PLAN 2014- 2020
- CLIMATE ACTION PLAN FOR NEW BRUNSWICK, CONSERVATION COUNCIL OF NEW BRUNSWICK
- NEW THINKING: CANADA’S ROADMAP TO SMART PROSPERITY, SMART PROSPERITY
- ECOFISCAL COMMISSION, “CHOOSING WISELY”
- ELECTRICITY AND NOVA SCOTIA’S FUTURE: HURDLES AND OPPORTUNITIES, ECOLOGY ACTION CENTRE
- DEPARTMENT OF ENERGY – NOVA SCOTIA
- OUTCOMES: FORUM ON CARBON PRICING OPTIONS FOR NOVA SCOTIA
- ATLANTIC PROVINCES ECONOMIC COUNCIL
- NEW ENGLAND GOVERNORS AND EASTERN CANADIAN PREMIERS SECRETARIAT

- BRIAN JEAN, LEADER OF THE OPPOSITION, PROVINCE OF ALBERTA
- FUNDY ENGINEERING
- WSP GLOBAL
- STANTEC ENGINEERING
- CANADIAN ENERGY RESEARCH INSTITUTE (CERI)
- INNOVATIVE RESEARCH GROUP
- INTERNATIONAL ENERGY AGENCY (IEA)
- U.S. ENERGY INFORMATION ADMINISTRATION (EIA)

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