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New Brunswick
BUSINESS COUNCIL
CONSEIL D'ENTREPRISES
du Nouveau-Brunswick

Meeting the Federal Requirement for a Price on Carbon:

Which approach is right for New Brunswick?

March 16, 2017

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EXECUTIVE SUMMARY

By 2018, New Brunswick will have a price on carbon by way of a carbon tax, a Cap & trade system or a hybrid of the two approaches. The province of New Brunswick's Climate Change Action Plan, along with the federal mandate for a carbon price, means that carbon pricing for New Brunswick is no longer just an environmental issue -- it is a regulatory issue.

Which carbon pricing mechanism -- a carbon tax, Cap & trade or a hybrid of the two -- would work best in the context of New Brunswick's economy, future aspirations for economic development, demographics, and trade relationships?

To discuss this question of carbon pricing design, the January 10, 2017 ***Symposium on Carbon Pricing in New Brunswick*** organized through the Policy Studies Centre at the University of New Brunswick in partnership with the New Brunswick Business Council brought together a diverse group of 60 stakeholders from around the province including government, entrepreneurs, industry, seniors, environmental and social NGO's as well as academia for a day of facilitated discussion led by New Brunswick Social Policy Research Network.

The Symposium discussions highlighted that in practice, putting a price on carbon is complex. It creates socio-economic risks if poorly executed and economic opportunities if "done right". While discussions suggest that participants see carbon pricing as investment opportunity for New Brunswickers - it is also one that has the potential for a better tomorrow but with no clear contract for what they will pay for it today.

The Government of New Brunswick and the Symposium participants agree on the potential long-term economic opportunities from taking action on climate change and the role of carbon pricing in incenting change. Where the Symposium participants expressed concerns about carbon pricing for the province, it is that the investment opportunities and revenues from carbon pricing for long-term economic and environmental benefits come at a cost to businesses, households and the provincial economy today.

Care must be taken by the Government in developing carbon pricing to ensure that the realization of future opportunities is achieved at minimum socio-economic costs today with a fair and reasonable distribution of those costs across New Brunswick businesses and households. The report identifies the concern of Symposium participants that New Brunswickers are ill-equipped with respect to carbon literacy to understand the implications for themselves and the economy of the carbon pricing options.

Based on the discussions over the day, the highest-level recommendation that comes from the Symposium for the province is that the Government must be transparent in its objectives for carbon pricing and the values guiding the design and implementation of any carbon pricing mechanism – what is the balance between revenue to finance the transition to a greener economy and reductions in emissions? What principles will guide how the Government will allocate the burden of carbon pricing across businesses, households and communities? Meaningful engagement with stakeholders about the design, investment in modelling of policy alternatives and demonstrating a willingness to learn the lessons from jurisdictions further down the path of carbon pricing is critical for developing the trust that whatever policy is rolled out for 2018 is the best option for New Brunswick.

The Government of New Brunswick has committed to 118 actions on Climate Change, including the creation of a Climate Change Act which would enable the government to price carbon and establish a

fund from the revenues collected. Recognizing this, and based on what we learned from the Symposium, we have several recommendations aimed at identifying where more work is needed to develop the actions to be taken, particularly the development of a carbon pricing approach for New Brunswick.

- 1) Resolve as much of the uncertainty as possible by committing to principles for the design of carbon pricing.
 - a. Clarify the objective(s) for carbon pricing so that households and businesses understand how the mechanism will be developed and for what purpose. What is the balance the Government seeks between reducing GHG emissions to meet its targets and raising revenue to finance the green economy opportunities?
 - b. What are the GHG emissions targets going to be, the more aggressive targets of the province's Climate Change Action Plan or the federal government targets?
 - c. Clarify the government's assumptions about the competitiveness of large emitters under carbon pricing and Caps on emissions.
 - d. Clarify the government's priorities between taking action on Climate Change and other initiatives like regional approaches to regulation and ensuring good climates for business in the province.
 - e. How will the economic and fiscal burdens of carbon pricing be distributed across emitters, consumers and other stakeholder interests through credits, exemptions, offsets, etc...?
- 2) Invest in improving the carbon literacy of New Brunswickers along with educating them about climate change. Ensure the business literacy of all government departments tasked with developing a carbon pricing scheme and learn from the experience in other jurisdictions.
- 3) For transparency and accountability in the selection of a carbon pricing approach for New Brunswick, invest in the modelling and information production to inform the design of the mechanism and to inform stakeholders of the likely impacts of the alternative mechanisms. Disclose the information produced from the modelling in the public domain.
- 4) Consult with stakeholders and engage experts for guidance on carbon pricing design, learning from other jurisdictions' experiences while accounting for New Brunswick's unique concerns.
- 5) Proceed with caution when adding to the cost of doing business in New Brunswick – benchmark, credit, offset and recycle revenues as necessary
- 6) Wherever possible align carbon pricing design with those of other jurisdictions that are important trading partners for New Brunswick such as Quebec, Ontario, the rest of Atlantic Canada and the nine Northeastern United States.
- 7) Acknowledge what has been invested to reduce emissions to-date. Carbon pricing should recognize the historical investments by firms and consumers to reduce their emissions. Having achieved the lower cost changes that others have not undertaken, they face a much higher marginal cost of further emissions reductions.
- 8) Choose the mechanism that best allows for business growth and economic opportunities to be realized.
- 9) Investigate the opportunities from participating in national, and international carbon pricing markets with modelling of net impacts on households, businesses and industries.
- 10) Independent of the carbon pricing mechanism chosen, develop the necessary protocols for offset credits as a marketable asset through carbon sequestration in forests, agricultural land and other viable means.

I. INTRODUCTION

On October 3, Prime Minister Trudeau announced a Canada-wide carbon price as part of a national strategy to reduce greenhouse gas (GHG) emissions. The First Ministers finalized a Pan-Canadian Climate Plan in Ottawa on December 9th 2016 with only Saskatchewan not committing to implement its own mechanism for pricing carbon. The federal Government requires provinces to implement a carbon price of \$10 per tonne in 2018, rising \$10 per year to reach \$50 per tonne by 2022.

Each province must demonstrate by 2018 that it is meeting the federal requirement, either through matching the carbon price schedule or by implementing a cap on emissions in the province that is at least as stringent as the federal greenhouse gas reduction target of 30% below 2005 levels by 2030. The Pan-Canadian Climate Plan leaves the design of a province's carbon pricing mechanism to the provinces so that whatever mechanism is implemented can address needs, circumstances and preferences of businesses and residents. If a province does not implement its own mechanism for pricing carbon, the federal government will impose a carbon tax on the province and return the revenues to the province.

The New Brunswick government released its Climate Change Action Plan¹ on December 7, 2016 with a commitment to a price on carbon as part of 118 recommended actions. The provincial Government's Action Plan sets more aggressive GHG emissions targets for New Brunswick than those of the federal Government.² With respect to pricing carbon, in the Climate Change Action Plan it is stated that the Government of New Brunswick will:

"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." (Page 11 – action item 32)

¹ <http://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/Climate-Climatiques/TransitioningToALowCarbonEconomy.pdf>

² Where the federal Government targets require GHG emissions by 2030 that are 30% lower than in 2005, New Brunswick's GHG emissions targets of 10% lower emissions than in 1990 by 2020 and 35% lower by 2030 represent a roughly 30% reduction from 2005 GHG emissions levels by 2020 instead of 2030 and a 50% reduction from 2005 by 2030.

As of February 10, the Gallant Government had not decided on a method for carbon pricing and it is not clear if carbon pricing will be introduced in fiscal year 2017/18 or 2018/19.³

The province of New Brunswick's Climate Change Action Plan along with a federal mandate means that carbon pricing for New Brunswick is no longer just an environmental issue -- it is a regulatory issue. Which carbon pricing mechanism -- a carbon tax, Cap & trade or a hybrid of the two -- would be best for New Brunswick? In the context of New Brunswick's economic structure, future aspirations for economic development, demographics, and trade relationships, which carbon pricing mechanism -- a carbon tax, Cap & trade or a hybrid of the two -- is most likely to minimize the socio-economic costs of meeting the Government's regulatory and economic development objectives?

The January 10, 2017 *Symposium on Carbon Pricing in New Brunswick* organized through the Policy Studies Centre at the University of New Brunswick in partnership with the New Brunswick Business Council brought together a diverse group of 60 stakeholders from around the province including government, entrepreneurs, industry, seniors, environmental and social NGOs as well as academia for a day of facilitated discussion led by New Brunswick Social Policy Research Network to identify:

- **What principles and design criteria should inform New Brunswick's carbon pricing model to ensure competitiveness and to protect trade exposed industries and low-income citizens?**
- **What other policy options should be considered along with a price on carbon?**
- **If government collects revenue from a price on carbon, how should the revenues be allocated or used?**
- **What are the economic opportunities available to New Brunswick from the transition to a low-carbon future?**

The Symposium was designed to take participants through facilitated conversations about carbon pricing possibilities for the Province. Participants were placed in working groups to ensure a mix of stakeholder perspectives to maximize learning and interaction between participants.

The objective of the day was not to produce prescriptive recommendation for how carbon must be priced or for detailed elements of the policy. Instead, the goal of the day was to identify key issues that stakeholders in the room want to see considered as the Government of New Brunswick designs and implements its carbon pricing mechanism for the province. The

³ Adam Huras, "When is a tax on the price of carbon coming? Gallant government won't say exactly when," The Daily Gleaner, Friday February 10, 2017, page B1.

audience for this report is not limited to government and is intended to be for the citizens of New Brunswick who will ultimately be living with the chosen design.

The main message of this report is that, in practice, putting a price on carbon is complex and creates socio-economic risks if poorly executed and economic opportunities if “done right”. The highest-level recommendation that comes from the Symposium for the province is that the Government must be transparent in objectives for carbon pricing and the values guiding the design and implementation of any carbon pricing mechanism – what is the balance between revenue to finance the transition to a greener economy and reductions in emissions? What principles will guide how the Government will allocate the burden of carbon pricing across businesses, households and communities?

Based on the discussions over the day, meaningful engagement with stakeholders about the design; investment in modelling of policy alternatives and public disclosure of the results and demonstrating a willingness to learn the lessons from jurisdictions further down the path of carbon pricing will be critical for developing the trust that whatever policy is rolled out for 2018 is the best option for New Brunswick.

II. BACKGROUND: THE OPTIONS FOR PUTTING A PRICE ON CARBON IN NEW BRUNSWICK

The economic case for a price on carbon emissions is simply that it requires emitters to pay a price for fossil fuel that reflects the environmental cost of activities responsible for greenhouse gas emissions. With a price on carbon emissions, businesses and consumers will have an incentive to use less fossil fuel, reducing CO₂ emissions. In the short run, the higher cost of using fossil fuels will encourage the development of supply and use of cleaner fuels. In the long run, as cleaner energy becomes more affordable, the economy can also grow.

While the principle and purpose of carbon pricing may be clear, how to put a price on carbon is not. Challenges exist for how to design the carbon pricing scheme and how to manage the social and economic costs over the short run as households and businesses are faced with higher prices and limited opportunities to shift to alternative clean energy sources which may have higher prices.

Carbon pricing strategies have three components –

- 1) Pricing Mechanism (Cap & trade, carbon tax, or hybrid),
- 2) Emissions Included (upstream, downstream, or combination)
- 3) Revenue Use (return to people/firms including exemptions, reduce other taxes or regulations, fund government programs to support firms and individuals adapt/mitigate).

Designing a carbon pricing scheme for New Brunswick amounts to making choices about these three components.

1) Pricing Mechanism

Both Cap & trade and carbon tax mechanisms have been implemented in other jurisdictions and in principle both can be effective for achieving efficient emission reductions from fossil fuel use.

| | Cap and Trade | Carbon Tax |
|-----------|---|----------------------------------|
| Emissions | Declining emissions cap set by government | Emissions volume based on market |
| Price | Price based on market | Rising price set by government |

Source: <http://PriceonCarbon.org>

Under a carbon tax, fuels are taxed according to their carbon content per BTU. Government sets the tax rate that is expected to reduce emissions to a chosen target level. To discourage further emissions, the tax can be increased over time. This approach provided certainty on the price of carbon but not for the reduction of emissions.

Under Cap & trade, aggregate emission limits (Caps) are set by Government. Caps may be imposed on selected industries and/or individual entities. Once government sets the Cap for total emissions, permits or quotas for emissions are allocated to emitters. An important part of Cap & trade is how emissions allowances are allocated. If a government sells emissions permits at auction then revenue is gained. If the emissions allowances are granted to existing emitters (grandfathering/benchmarking) then there is not the same ability for revenue collection. Permits to emit are tradeable. Where permissible emissions cannot be acquired through purchase, excess emissions will either result in fines for the emitter or a requirement to purchase or produce emissions offset credits which are available through in house investments of the emitter or through purchase in international markets for offset credits. To reduce emissions, the Cap set by government can be lowered over time, raising the price/value of permits to emit. This approach provides certainty on the emissions reductions, but not the price of carbon, which will be set by the market. To reduce the volatility of prices in the market, some Cap & trade systems have a price floor and/or ceiling set by the government.

A hybrid approach to carbon pricing can also be implemented, where carbon tax and Cap & trade systems interact. Here, the two mechanisms will lead to two different carbon prices. Prices can be independent of one another, or linked (e.g., the tax can double as a maximum or minimum trading price in the Cap & trade system or the trading price can be used to set the

carbon tax rate).⁴ Here, the Cap & trade system can be applied to large final emitters, and a carbon tax can be applied to smaller commercial and residential consumers.

Emissions trading systems taking a Cap & trade approach are in place in the European Union, California and nine US states in the northeast and mid-Atlantic regions. In Canada, carbon taxes have been levied in British Columbia and Alberta⁵ but Ontario, Quebec and Nova Scotia have opted for a Cap & trade or hybrid emissions trading approach.⁶

2. Emissions Included

Upstream carbon pricing imposes emissions Caps or carbon taxes on fossil fuels at the point of their collection or distribution. In this case the carbon price is focused on coal, oil and natural gas producers. Downstream carbon pricing sees emissions Caps or carbon taxes imposed on fossil fuels at the point of their combustion. In this case the focus is on electricity power plants, industrial boilers, and mobile sources such as vehicle emissions (priced at the retail gasoline level). Obviously, a combination of upstream and downstream emissions included in the carbon pricing scheme is possible as well.

3. Revenue Use

Revenues collected by the government can be used in a number of ways. For instance, they can be returned to individuals and businesses as transfers to offset the increased costs of living and costs of business arising from carbon pricing. Alternatively, carbon pricing revenues can be used to reduce other taxes like income or business taxes. A popular term used to describe this option in the context of a carbon tax policy is 'revenue-neutrality', where sales taxes or income taxes could be reduced with the introduction of a carbon tax so the government sees no net gain in revenue. Revenue neutrality means that carbon pricing changes how we tax but not how much we tax.

Finally, governments may choose to use revenues collected under carbon pricing to: (i) mitigate emissions through investment in R&D; (ii) provide subsidies for clean energy use or to encourage residential and business energy efficiency; (iii) invest in infrastructure and other areas to help the local economy adapt to climate change, (iv) reduce public debt, other taxes.⁷

⁴ Sustainable Prosperity (2009). Hybrid carbon pricing. Report prepared for Sustainable Prosperity, Ottawa, ON. Available at:

<http://www.sustainableprosperity.ca/sites/default/files/publications/files/Hybrid%20Carbon%20Pricing.pdf>

⁵ Alberta has an additional levy on large emitters beyond a base level of emissions. To achieve the mandated reductions the large emitters have the following options: they can reduce their emissions, buy carbon offsets or pay the levy. There does not appear provision for the trade of emissions permits between emitters so we define Alberta as a carbon tax jurisdiction.

⁶ World Bank (2016). State and Trends of Carbon Pricing 2014. Report prepared by the World Bank, Ecofys and Vivid Economics, Washington, DC. Available at:

<https://openknowledge.worldbank.org/bitstream/handle/10986/25160/9781464810015.pdf?sequence=7&isAllowed=y>

⁷ <https://www.ecofiscal.ca/reports/choose-wisely-options-trade-offs-recycling-carbon-pricing-revenues/>

In principle, there are many equivalencies between a carbon tax and Cap & trade carbon pricing schemes.⁸ With appropriate design and use of emissions allocations and revenues, both can provide the same incentives at the margin to reduce emissions; achieve distributional goals and maintain competitiveness, and include or exclude offset credits.

There are important differences between the schemes in terms of design. First, if the objective is to have certainty over emissions, Cap & trade would be best since it sets emission limits directly. A carbon tax allows emissions to be market-determined. On the other hand, if price or revenue predictability is a major objective, then a carbon tax would be best. The carbon tax may also appear at first to be relatively easier and less costly, administratively, to implement (i.e., regulators do not have to monitor or register emissions credits and trades as they would under Cap & trade) but, like any new tax, it will still be complex to incorporate offsets, credits, exemptions and rebates to address household costs and business competitiveness. Linking New Brunswick with other regions under a Cap & trade scheme poses a risk of revenue outflows if emissions permits are purchased from other regions, and “emissions leakage” when emissions permits are exported from the jurisdiction under multi-region Cap & trade arrangements. At the same time, a carbon tax can induce “emissions leakage” if emitters move some or all of their production to other jurisdictions with lower costs of emissions compliance, or preferable emissions regulations arrangements.

III. QUESTIONS DISCUSSED DURING THE SYMPOSIUM

Question 1: What are some of the concerns of stakeholders over putting a price on carbon?

The first discussion session was intended to elicit views on the perceived critical issues for designing a mechanism for pricing carbon - taking as a given that there will be a price on carbon that conforms to the federally mandated requirements. Themes that emerged from the discussions were about the economic risks for New Brunswick of a carbon pricing scheme that adds to the challenges of doing business in the province. One table of participants expressed that a mistake made in the design of carbon pricing will create economic impacts that could last for generations.

Participants highlighted the complexity of the issues for designing a carbon pricing mechanism. We need the information from modelling, the experience of other jurisdictions and the input of stakeholders on the likely outcomes, burden and impacts of the options for pricing carbon. Given the complexity of carbon pricing, Symposium participants expressed the desire that the government of New Brunswick take the required time to “get this right”.

An important part of “getting this right” would be ensuring that New Brunswickers have sufficient carbon literacy and competency to understand and evaluate the carbon pricing mechanism that they will be agreeing to and with which they will be living. This will require

⁸ Goulder, L. & A. Schein (2013). Carbon taxes versus Cap & trade: a critical review. *Climate Change Economics* 4(3): 1350010 (28 pages).

that they are provided with sufficient information and education on the alternative designs and choices that must be made.

The influence of carbon pricing on growth was widely discussed in the session. There was a desire in the room that the pricing mechanism be designed to first do no harm with respect to growth, and possibly to create opportunities for economic growth in the province. A more detailed theme around growth was the desire to see the pricing mechanism design be best for maintaining competitiveness of trade exposed producers in New Brunswick through alignment of carbon policies with other jurisdictions.

With respect to competitiveness, participants highlighted that for businesses, New Brunswick is already a high cost jurisdiction due to higher costs for transportation and energy and in terms of taxation and regulation. There is a concern that businesses are not able to absorb further increases in the cost of doing business in the province. Failure to recognize this risk is that a price on carbon could transfer wealth out of New Brunswick through an increase in imports at the expense of production and a diversion of private sector investment to jurisdictions with a more favorable business costs.

Symposium participants expressed the desire that the carbon pricing mechanism be designed to appropriately allocate the fiscal and economic burdens of carbon pricing. This issue arose in a variety of contexts.

- The capacity to carry burden from carbon pricing is greater for the less trade exposed emitters.
- Some emitters have already invested in reducing emissions. This means that the lower marginal cost abatements have already occurred and further emissions reductions will be more costly compared to emitters who have not to date invested in emissions reductions.
- Investments in emissions reductions prior to 2018 could be recognized in the determination of allowable emissions under Cap & trade or towards a tax exemption under a carbon tax.
- In determining who should carry the burden of a carbon tax or allowable emissions under Cap & trade, the assignment of burden could be considered on a per sector basis rather than economy wide so that emitters are compared to their industrial peers in New Brunswick and/or other jurisdictions.

There is also a need to consider the burden and impact of carbon pricing on households and other stakeholder groups in the province. Households, public sector institutions (universities, schools and hospitals) and the voluntary sector (homeless shelters, food banks) could face increased prices for goods and services and taxes and out of pocket service costs resulting from the increased costs of local government services. For households to be able to change behavior from the price on carbon, there needs to be complementary investment in areas like public transit so that households have alternatives to driving. Similarly, to support transition to lower emissions in transportation, heating and energy use, there may need to be subsidies for greener capital goods and upgrading of the housing stock.

Question 2: What are the economic opportunities available to New Brunswick when putting a price on carbon?

Where the previous discussion asked participants to relate concerns with pricing carbon, this discussion focused on the economic opportunities for the province created by carbon pricing. Two prominent themes arose – first, the opportunities to design and implement a mechanism that could minimize the negative impacts of carbon pricing and second, the opportunities for growth through a transition to a green economy spurred by carbon pricing.

If the goal is to change behavior to reduce emissions, then the design of carbon pricing mechanism should do so without impacting growth, or capacity for the economy to grow in future. Carbon pricing could be viewed as a substitute for other regulations and taxes already in place rather than additional regulation. As it was proposed in 2008 in New Brunswick, carbon pricing can be part of a larger initiative of tax reform where there may be an opportunity to improve New Brunswick’s competitiveness (Ruggeri 2009).

With respect to regulatory reform, the Government of New Brunswick could consider the “One for One” regulatory reform legislation approach of the federal government (<https://www.canada.ca/en/treasury-board-secretariat/services/federal-regulatory-management/one-for-one-rule.html>). Under this approach the introduction of additional regulatory burden through carbon pricing would need to be offset by removal of equivalent regulatory burden through removal or reduction of other regulations currently in place that are potentially redundant under carbon pricing. These need not be restricted to environmental regulation if the target is to price carbon while maintaining producer competitiveness.

Caps on GHG emissions and establishment of offset credits create wealth through the establishment of property rights on emissions & sequestration and by using policy to create scarcity of permissible emissions. Under a Cap & trade system, the scarcity in emissions rights creates an asset value no different from timber or mineral rights, or quotas in supply managed agricultural markets. The value of these rights, and the distribution of the newly created wealth, will be determined by policy decisions of the government of New Brunswick about the total amount of emissions and the rules for allocating and trading of permits. If Caps on emissions are to be imposed, then the Cap, or the allocation of emissions permits, should leave room for businesses to start up in New Brunswick.

Carbon offset credit protocols allow for the monetization of carbon sequestration in forests or agricultural land. This could amount to recognition of expenditure or investment in forest management which is not tradeable or the creation of an asset which is tradeable and reflects the value of investment in forest management or other approaches to carbon sequestration. In either case, the likely impact of forest or agricultural offset credits would be an increase investment in reforestation, forest management, R&D into forest management, fire and pest suppression and potentially related markets for insurance of the standing forest backing the assets.

Participants in the Symposium generated a number of suggestions for how carbon pricing creates economic opportunities through the greening of the economy. First, carbon pricing creates the incentive, and the means through monies collected, to spur capital renewal to improve the energy efficiency of households and businesses. Energy efficient vehicles for transportation, including electric vehicles, improved quality of housing, new furnaces and technology for households to manage energy consumption, new machinery in firms all have the potential to reduce the growth in energy consumption and emissions. These investments in Capital renewal in New Brunswick offer long term gains in terms of reduced energy costs and emissions but must be financed up front in the short term. To overcome the fixed costs of this transition to the green economy, government can borrow or use “ear marked” revenue from the carbon pricing mechanism and promised federal support for infrastructure to provide investment incentives for household and businesses in New Brunswick.

Several opportunities for diversification of trade and the economy were identified through the “green shift” in the global economy. Carbon pricing and a greening of the economy and its services like ports and transportation may create a competitive advantage for trade with partners who value lower carbon services in their supply chain. This would diversify the province’s trade partners reducing New Brunswick’s reliance on exports to the US. Eco-tourism and the attraction of green industry would be benefits of carbon pricing and the greening of the economy. Biomass fuels, renewable energy, green technologies and IT through software for electric cars and Smart Grid are examples of green industry where New Brunswick could have a comparative advantage.

In the longer term, many participants raised the potential for New Brunswick to develop a green cluster of industry arising from research and development, technological innovation around initiatives like Smart Grid. NB Power and UNB with support from Siemens and Emera are working to develop exportable technologies and intellectual property. By being ahead of the pack on greening the economy, New Brunswick will be able to invest in developing the human capital for a low carbon economy. Opportunities here range from measurement and verification services for emissions regulation and carbon offset protocols to maintenance and repair services for new technologies like electric vehicles and renewable energy machinery. The knowledge created could be exportable as services provided by New Brunswick based companies. Finally, in being a leader in the green shift New Brunswick could be a leader in change education – showing what is possible and how to achieve it.

It is important to recognize that the returns expected from new green economy are inherently risky like any other industry in a “start up” phase. While New Brunswick shows some promising “green shoots” of new business activity, the experience of other jurisdictions like Ontario and BC show that the size and timing of returns to the greening of the economy are uncertain which creates accountability challenges for “province building” through publicly supported green investments.

Question 3: Which model of carbon pricing, 1) carbon tax, 2) Cap & trade or 3) hybrid would be more likely to minimize concerns and maximize opportunities?

Group discussions were focused on the design characteristics of each mechanism, and how they would affect: (i) the competitiveness of New Brunswick industries; (ii) economic growth; and (iii) households and low-income groups.

Participants recognized that each carbon pricing mechanism could be structured in a way that replicated the outcomes of one another, and that the details of each needed to be well-defined before preferences could be decided on. For Cap & trade, participants voiced many perspectives on how the emissions targets should be set, how permits should be allocated, what entities should be covered, what range of permit price should be allowed, whether there should be differential treatment for trade-exposed entities, whether New Brunswick should join with other Cap & trade systems, what should be done with revenues generated by government, whether offsets should be included, and what the overall impact would be on the New Brunswick economy.

Similarly, for carbon taxes, participants voiced many perspectives on what the tax rate would be, how it should change over time, what entities should be covered, whether there should be tax exemptions or other differential tax treatment for trade-exposed industries, what should be done with revenues generated by government, whether offsets should be included, and what the overall impact would be on the New Brunswick economy.

While there was no consensus regarding a preference for any one mechanism, a number of participants indicated strong preference for the Cap & trade system on grounds that it could be implemented in a way that would maintain competitiveness of New Brunswick exporters and economic growth, and ensure regulatory alignment with neighboring provinces of Nova Scotia and Quebec. Furthermore, some believed that, if a Cap & trade system were to be implemented in New Brunswick, a portion of permits should be grandfathered and a baseline should be set in a way that rewards entities for past efforts to reduce carbon emissions. Regardless of the mechanism selected, many participants emphasized the need to: (i) consider differential tax or regulatory treatment of trade-exposed businesses; (ii) insulate low-income families and other economically vulnerable New Brunswickers against any cost increases; (iv) invest a portion of any revenues generated into further reducing carbon emissions; and (iii) include offsets.

Question 4: What are the next steps? How can we generate the information that would help design the right pricing mechanism for New Brunswick?

What do we know?

Participants highlighted that we know what the Federal government requires from the provinces with respect to having a price on carbon. The Federal government has been clear about the national targets, amounts and timing, the timing for coal phase out for electricity generation and the flexibility for provinces to choose how they will implement a price on

carbon. Participants accepted that the Federal government's commitment to impose a carbon tax in provinces without a carbon pricing mechanism by 2018 is credible. So we know that carbon pricing in New Brunswick will happen. Participants also expressed that if carbon pricing is done right then we know that the costs of the mechanism will be balanced by the opportunities it also creates.

Symposium participants expressed that the state and structure of the New Brunswick economy creates risk of serious economic harm from a poorly designed mechanism. The New Brunswick economy is seen to be fragile due to its high degree of exposure to trade with the US and the importance of energy intensive industrial producers. There is concern that business in New Brunswick lacks the capacity to absorb further regulatory and tax burden. So we know that the end result of carbon pricing will depend on whether the chosen carbon pricing mechanism addresses the competitiveness of New Brunswick producers.

Participants recognized that New Brunswick will need to offset the budgetary impacts of carbon pricing on households with low incomes, living in rural areas and/or with limited capacity to adjust behavior. We know that at this time, renewable energy is not as cheap as coal fired electricity for consumers and carbon pricing will increase the cost of transportation, food and shelter. We know that these impacts on household budgets are not necessarily well understood due to the low level of "carbon literacy" in the province and Canada more generally.

We also know that in addition to flexibility for how the province will put a price on carbon, New Brunswick has the benefit of studying the mechanisms applied in other provinces and states to learn what the best option might be for New Brunswick.

What do we not know? What do we need to know?

From the discussions of this issue with respect to developing a carbon pricing mechanism that is right for New Brunswick, it is clear that New Brunswick stakeholders lack necessary information to assess the feasibility and desirability of each of the options.

Participants identified several things that the Government of New Brunswick needs to establish as part of developing its carbon pricing mechanism. First, there is no clear statement of the **objective** of putting a price on carbon in terms of the relative emphasis on reducing emissions versus raising revenue. The choice of a carbon tax versus a Cap & trade system depends critically on whether a government seeks to regulate emissions as suggested by its emissions targets or to raise revenue to finance green economy growth opportunities through its dedicated climate change fund. At this time we do not know the balance between reducing emissions and raising of revenue the government hopes to achieve with the carbon pricing mechanism.

Regardless of which carbon pricing mechanism is used, participants identified a need for the Government to establish the baseline for emissions. Are the targets for GHG emissions those

in the Climate Change Action Plan or those of the federal government?⁹ Is the baseline for emissions general to New Brunswick or set by sector of the economy? Will the baseline emissions be based on actual emissions or some consideration of “potential” or “full employment” emissions?¹⁰ What are the consequences for the treasury and producers for New Brunswick for not meeting target?

More information is needed about the experience with carbon taxes and Cap & trade mechanisms in other provinces and states. We need a better understanding of what will happen with decarbonization policy in the United States and how both the federal and provincial governments will identify and address trade implications that could arise under alternative carbon pricing mechanisms. The Western Climate Initiative, in partnership with Canadian policy makers, has developed a step by step guide to assist governments that are looking to implement a Cap & trade system to clearly define the decisions and policies that are required to successfully participate in a Cap & trade system. (<http://www.wci-inc.org/program-design.php>).

Participants identified a need for information for households, business and industry on how they can adjust their behavior to avoid or offset some of the cost of carbon pricing; renew their capital or take advantage of emerging economic opportunities. To support households and other stakeholders in this regard, more education is needed with respect to energy sources (generation), transport (transmission) and distribution.

Participants highlighted the lack of modelling that has been done to evaluate the carbon pricing mechanisms under consideration. From modelling we can gain insight into which approach would achieve the policy objective at the lowest cost; identify the likely magnitudes and distribution of the expected impacts of carbon pricing, and understand the potential of carbon sequestration to offset carbon emissions.

Finally, there are some issues that cannot be understood with modelling or research because there is no history to draw on or uncertainty over the issue. Here consultation with stakeholders and engaging experts to provide guidance to policy makers is necessary. For

⁹New Brunswick emissions are already 25% below its 2005 level so the choice could be to take that quantity of emissions at the baseline as permissible emissions to be used or sold to other jurisdictions rather than as recognized emissions reductions towards national targets under the Paris Agreement. The Federal target is for 30% reductions by 2030 whereas the province’s Climate Change Action Plan calls for the equivalent emissions reductions by 2020. Climate Change Action Plan (page 4, footnotes 1 and 3). http://logixml.ghgregistries.ca/New%20Brunswick%20Dashboard%20Solo/rdPage.aspx?rdReport=Dashboard_Provincial

¹⁰ Actual emissions reflect how much you are producing but for slack economic conditions where a province is producing below its potential, one could make a case that the emissions baseline and targets should be based on “full employment”/“potential GDP”. Using actual emissions to set baseline emissions levels and GHG reductions targets disadvantages NB versus other provinces with stronger growth. Further additions to the stock of permissible emissions in New Brunswick could be achieved by defining emissions relative to a “full employment” or “potential GDP” benchmark for 2005 so as not to be disadvantaged by cyclical effects that have resulted in at least some of New Brunswick’s GHG emissions reductions over the past decade.

example, what are the trade and political risks that arise with carbon pricing? Where is the “low hanging fruit” in terms of opportunities to reduce emissions and/or profit from the imposition of carbon pricing? How large, and how viable, would a market for New Brunswick emissions permits and offsets be under Cap & trade?

IV. **DISCUSSION: Symposium discussions in the context of the Climate Change Action Plan**

In its Action Plan on Climate Change, the Government of New Brunswick identified 118 actions that it will take to combat climate change. Many of the actions in the Plan address the concerns and opportunities with carbon pricing methods discussed at our Symposium. For example, action item 32, would seem to summarize what our Symposium participants would like to see the government do with respect to carbon pricing:

the provincial government will: “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” (page 11)

It is also clear that the Select Committee that drafted the Climate Change Action Plan and the Government of New Brunswick see the economic opportunities for R&D, carbon sinks and offsets, and capital renewal for households and business aligns with the views of our Symposium participants. The plan also clearly identifies emission reductions targets for New Brunswick that are more stringent than the federal requirement and a commitment to use revenues from carbon pricing to build up a dedicated fund for supporting New Brunswick’s transition to a low emissions economy. How revenues from carbon pricing will be used still seems uncertain. Environment Minister Serge Rousselle has stated that “There will be carbon pricing in New Brunswick and all of the money will be reinvested for the protection of the environment”. (page B2 Gleaner, February 10)

The Select Committee that authored the Plan conditioned its recommendations on two trends – one, the increasing negative impacts of climate change on the province and two, the global shift towards 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. 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.”(page 3)

In the Premier’s comments in the Plan, Premier Gallant expressed:

“We learned that responses to climate change in the areas of emission reduction and climate change adaptation offer the potential for long-term job creation in the province and can provide a stimulus for investment in innovation and business development. We need to be ready to take advantage of these opportunities in New Brunswick... Markets are changing as governments commit to the shift to lower carbon economies and embrace innovation and new opportunities in combatting climate change.”(page 1)

The Action Plan also may be a source of the concerns expressed at our Symposium. The Action Plan makes no clear statements recognizing the challenges for trade exposed business and industry to take on additional costs of business in the province to remain competitive. For example, where the plan addressed the competitiveness of New Brunswick trade exposed producers, it was not in terms of cost disadvantages that could arise with a price on carbon, only the benefits for competitiveness by reducing the risk of trade disputes with jurisdictions that currently have a price on carbon.

“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.” (page 9)

The plan recognizes the importance with collaborating with other jurisdictions to share information and experiences with carbon pricing but not the importance to businesses of aligning regulations and taxes with other jurisdictions.

With respect to the increase in energy costs for home and business the Climate Change Action Plan commits the government to working with industry and business partners to find efficiencies in energy use, to set emissions limits for the largest industrial emitters that are fair and equitable. There is no clear action item for determination of exemptions, rebates or

offsets to buffer the short term impacts of potentially aggressive GHG emissions reductions under the targets laid out in the action plan.¹¹

With respect to education, the plan commits the government to educating New Brunswicker's about the impacts of climate change and what they can do to mitigate and adapt to it but there is no plan to improve carbon literacy which would allow New Brunswicker's to understand the impacts of carbon pricing and how to mitigate and adapt to those policy caused changes.

The uncertainty over how carbon will be priced and how the burden will be distributed is a negative influence on private sector investment in New Brunswick, including for green economy developments. Resolving the uncertainty may not require full development of a carbon pricing mechanism but it may require some clarity and transparency as to the structure (Cap & trade or carbon tax or hybrid) and the principles that will guide the development of whatever carbon pricing mechanism is chosen.

Modelling of climate pricing alternatives has been identified by our participants as a critical step to inform the development of a carbon pricing approach for New Brunswick. A comparative perspective on the carbon pricing options would identify the likely benefits and costs inherent in any one mechanism as well as the broader macroeconomic implications. It is unusual for a policy change as pervasive and important as carbon pricing would not have this modelling carried out in advance. When the Government of New Brunswick previously consider a carbon tax as part of tax reform initiative in 2008, Joe Ruggeri noted that, like with the current government's Climate Change Action Plan, the Government of New Brunswick had not released any studies showing the impacts of a carbon tax on emissions and provided few details for the proposed tax to allow for an evaluation of it. Ruggeri (2009, 1) argued that "no responsible government would introduce a major new tax without a full analysis of its potential impact". The Government of New Brunswick has engaged a private sector firm to study the options for pricing carbon in New Brunswick but there will be no formal report produced. Instead on-going analysis will be provided to the government with no end date for that process.¹² While it is positive that the government will have the information from the modelling, the lack of a report in the public domain with details of the model and assumptions made undermines the transparency of the development process for carbon pricing policy.

The potential fiscal and environmental impacts of a carbon tax in New Brunswick have been modeled as recently as 2009. The June 2008 Department of Finance *Discussion Paper on New Brunswick's Tax System* proposed a revenue neutral carbon tax modelled after the carbon tax implemented in British Columbia as part of a broader tax reform package for the province. Joe

¹¹ Page 13 – transportation initiatives around vehicle choices, fuels and transportation modes (road, rail, marine and pipelines). For freight movement the government plans to work with freight trucking partners to improve fuel efficiency of trucks "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. 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." Page 13 Regulation of Industry Emissions – the provincial government will "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."

¹² Adam Huras, "Province pays firm to model different carbon price options," The Daily Gleaner, Thursday February 23, page A6.

Ruggeri, at the time the Vaughan Chair in Regional Economics and Director for the Policy Studies Centre at UNB, modeled the impacts of a revenue neutral carbon tax of \$30 per tonne.¹³ Scaling Ruggeri's revenue estimates to reflect the federally required \$50 per tonne in 2016 purchasing power, a carbon tax would raise around \$500 million in revenue per year. Ruggeri's modelling showed that the carbon tax would have no impact on GHG emissions and would be regressive even if the full revenue were returned to households in proportion to household income.

It is clear to us that the Government of New Brunswick and our Symposium participants agree on the long term potential for the economy to thrive as a green economy. Where our Symposium participants expressed concerns about carbon pricing for the province, it is in areas concerning the short run impacts on households, businesses and the provincial economy. It may simply be a product of an Action Plan that is clear in its statement that carbon pricing revenues will be collected to finance the green restructuring of the economy and no clear discussion of the short term economic risks. There is concern that voters are ill-equipped with respect to carbon literacy to understand the implications for themselves and the economy of the carbon pricing options. There is concern that the government lacks an understanding of business and the realities of doing business in and from New Brunswick.

Perhaps we can summarize the situation as one where New Brunswickers are being offered a risky investment opportunity for a better tomorrow with no clear contract for what we will pay for it today and no assessment of the risk that it may not work.

V. RECOMMENDATIONS:

The main message of this report is that, in practice, putting a price on carbon is complex and creates socio-economic risks if poorly executed and economic opportunities if "done right". The highest-level recommendation that comes from the Symposium is that the design and implementation of any carbon pricing mechanism selected by the Government needs to have transparency in objectives, considerations and values guiding the Government's choices.

Based on the discussions over the day, meaningful engagement with stakeholders about the design, investment in modelling of policy alternatives and demonstrating a willingness to learn the lessons from jurisdictions further down the path of carbon pricing will be

¹³ Joe Ruggeri (2009) "The environment impact of a carbon tax in New Brunswick" UNB Department of Economics Working Paper 2009-01. <https://unbscholar.lib.unb.ca/islandora/object/unbscholar%3A7845>. Joe Ruggeri and J.P. Bourgeois (2009) "The incidence of the proposed carbon tax in New Brunswick," UNB Department of Economics Working Paper 2009-02. <https://unbscholar.lib.unb.ca/islandora/object/unbscholar%3A7846> Ruggeri (2009, 1) notes that according to the Department of Finance Discussion Paper (p.29): "New Brunswick could consider implementing a carbon tax based on the British Columbia model – a tax on all forms of carbon or carbon-equivalent emissions, phased in gradually over several years, with a reimbursement credit to offset the impact of this tax on low-income New Brunswickers.... The New Brunswick Carbon Tax would support the government's Climate Change Plan initiatives and help fund reductions in personal and corporate income taxes, allowing the overall tax changes to be fiscally neutral."

critical for developing the trust that whatever policy is rolled out for 2018 is the best option for New Brunswick.

The Government of New Brunswick has committed to 118 actions on Climate Change, including the creation of a Climate Change Act which would enable the government to price carbon and establish a fund from the revenues collected. Recognizing this, and based on what we learned from the Symposium, we have recommendations aimed at identifying where more work is needed to develop the actions to be taken, particularly the development of a carbon pricing approach for New Brunswick.

- 1) Resolve as much of the uncertainty as possible by committing to principles for the design of carbon pricing.
 - a. Clarify the objective(s) for carbon pricing so that households and businesses understand how the mechanism will be developed and for what purpose. What is the balance the Government seeks between reducing GHG emissions to meet its targets and raising revenue to finance the green economy opportunities?
 - b. What are the GHG emissions targets going to be, the more aggressive targets of the province's Climate Change Action Plan or the federal government targets?
 - c. Clarify the Government's assumptions about the competitiveness of large emitters under carbon pricing and Caps on emissions.
 - d. Clarify the Government's priorities between taking action on Climate Change and other initiatives like regional approaches to regulation and ensuring good climates for business in the province.
 - e. How will the economic and fiscal burdens of carbon pricing be distributed across emitters, consumers and other stakeholder interests through credits, exemptions, offsets, etc...?
- 2) Invest in improving the carbon literacy of New Brunswickers along with educating them about the impacts of climate change. Ensure the business literacy of all government departments tasked with developing a carbon pricing scheme and learn from the experience in other jurisdictions.
- 3) For transparency and accountability in the selection of a carbon pricing approach for New Brunswick, invest in the modelling and information production to inform the design of the mechanism and to inform stakeholders of the likely impacts of the alternative mechanisms. Disclose the information produced from the modelling in the public domain.
- 4) Consult with stakeholders and engage experts to for guidance on carbon pricing design, learning from other jurisdictions' experiences while accounting for New Brunswick's unique concerns.
- 5) Proceed with caution when adding to the cost of doing business in New Brunswick – benchmark, credit, offset and recycle revenues as necessary
- 6) Wherever possible align carbon pricing design with those of other jurisdictions that are important trading partners for New Brunswick such as Quebec, Ontario, the rest of Atlantic Canada and the nine Northeastern United States.

- 7) Acknowledge what has been invested to reduce emissions to date. Carbon pricing should recognize the historical investments by firms and consumers to reduce their emissions. Having achieved the lower cost changes that others have not undertaken, they face a much higher marginal cost of further emissions reductions.
- 8) Choose the mechanism that best allows for business growth and broad economic opportunities to be realized.
- 9) Investigate the opportunities from participating in national, and international carbon pricing markets with modelling of net impacts on households, businesses and industries.
- 10) Independent of the carbon pricing mechanism chosen, develop the necessary protocols for offset credits as a marketable asset through carbon sequestration in forests, agricultural land and other viable means.