From Climate Change Laggard to Leader: Policy Recommendations for Newfoundland and Labrador

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"We have to decarbonise our economies wholesale, and if we haven't reached zero greenhouse gas emissions globally by 2050 – and, preferably, 80 percent cuts by 2030 – then the second half of this century will not be a time you would choose to live in."

-Gwynne Dyer, *Climate Wars*

Dyer, along with many others reflecting international consensus in the scientific community, argues that countries must be carbon neutral by 2050 to avoid the worst impacts of climate change (Dyer, 2008, p. xii). To accomplish this by 2050, we need to act now: governments need to cooperate with the scientific community to ensure our society makes the changes to combat climate change. How is Canada reacting to this situation? As described by the Sierra Club of Canada, "The federal government continues to drag its feet, and delay any action to reduce emissions" (2008, p. 18). Given this federal reluctance, individual provinces must act to reduce emissions. While some provinces take the required action, primarily Quebec and British Columbia, others, like Newfoundland and Labrador, contribute little in terms of emissions reductions. Newfoundland and Labrador is ranked as "poor"—among the worst performers regarding climate change policy in the country—by the David Suzuki Foundation in a cross Canada evaluation of various provincial climate change policies (David Suzuki Foundation, 2008, p. 9). The province of Newfoundland and Labrador is not doing enough to address climate change.

In this paper I argue that to improve this situation, the province could follow the example of the two leading jurisdictions, Quebec and British Columbia, to refine and introduce its own hybrid policy that directly affects decision making processes. But, this can be complicated when convincing the government that it is important to accept stronger policy. The Government must consider what climate change impacts Newfoundland and Labrador experiences and will continue to experience and what Newfoundland and Labrador is contributing to the problem of climate change.

To evaluate these issues of climate change, I first survey the positive policies Newfoundland and Labrador is currently implementing/ discussing and then outline action taken by the provincial environmental leaders, Quebec and British Columbia. Then, I describe the strong pieces in the Quebec and British Columbia climate change action plan that Newfoundland and Labrador can emulate. Finally, I consider if these policies are politically feasible for the government of Newfoundland and Labrador. Hence, this paper aims to give a blueprint of what Newfoundland and Labrador has to act on to make itself an environmental leader.

Qualitative Case Comparison

To conduct this research, I used different methods of qualitative research such as, reviewing related documents, course participation, and attended meetings. Qualitative research is a major method in the social sciences that aims to consider routine circumstances of everyday and address questions of other things, as a method of understanding our own circumstances (Insight Media, 2006). Qualitative research is also an important research method because it views things in a non-scientific format when considering its meaning (Berg, 2001, p. 10). To gather the information that was required I used a "comparative case study" method. This method is a set of multiple case studies from multiple research entities for the purpose of cross-unit comparison (Garson, 2008). This form of case study is important especially when considering the cross comparison that was needed for Newfoundland and Labrador, Quebec, and British Columbia. The literature review was based around climate change policy literature, especially Canadian literature. I reviewed government documents, in particular climate change policies and action plans from British Columbia, Quebec, and Newfoundland and Labrador. Government documents provided much of the information on the actions or inactions of the provinces. I then did an overview of reports released by non-governmental organizations, most notably the David Suzuki Foundation and the Sierra Club of Canada which have conducted cross-Canada comparisons of climate change policy. These documents tend to be critical of those failing to meet any sort of environmental, science-based targets, while applauding those who were doing positive, progressive work in climate change. I also examined some of the media commentary surrounding these issues which provided some of the more recent information on some of the issues considered. Material from the Sir Wilfred Grenfell College Political Science 3731 course "Politics and the Environment" was used as a basis for portions of the theory. In addition, I had the opportunity to be a part of a discussion with Newfoundland and Labrador's Climate Change Secretariat, Jackie Janes, on February 23, 2010 which proved to be very beneficial to learning more about the climate change action currently underway in the province. Some would ask why I would care about the climate change action presently occurring here in Newfoundland and Labrador.

Being an environmentally aware student from this province made me realize how environmentally unaware this province is in its climate change policy. The David Suzuki Foundation also echoes that statement. While completing my literature review the Foundation also pointed to this climate change inaction, with the provinces 'poor' ranking in its report (2008, p. 9). As a young adult in Newfoundland and Labrador, I have an interest in keeping the province in a good condition. Therefore, I believe that the provincial government needs to act on strengthening its current policy. What better way to act than the same way as those who are the environmental leaders in this country, British Columbia and Quebec. This becomes clear when reviewing the literature from these governments and comparing their actions with others. These actions are important because of the possible impact that climate change will have on Newfoundland and Labrador, and the impact that Newfoundland and Labrador is having on the environment with its every day actions.

Case Context: Newfoundland and Labrador's Climate Change Impacts and Emissions

The province will be impacted and will cause impacts when considering the provinces influence on climate change. Newfoundland and Labrador stands to be effected by any change in the local climate as employment is primarily based around single resource industries (i.e. Paper Production, Fisheries, Oil & Mining) (Vasseur, 2008, p. 123). Such situations make Newfoundland especially vulnerable to any change in the environment. Liette Vasseur, formally K.C. Irving Research Chair in Sustainable Development with a strong background in climate change, and Norm Catto, Professor of Geography at Memorial University of Newfoundland in St. John's, believe the aboriginal population in Labrador is especially at risk. Also causing concern are changes to temperature and precipitation, storms, storm surges, sea-level rise, and sea ice. There is also a need to examine impacts on sensitive and adaptive effects on terrestrial ecosystems, coastal zones, marine ecosystems, water, and transportation (Vasseur, 2008, p. 120). In addition to what climate change will do to this province, it is also essential to determine how this province contributes to climate change? In the concerns of climate change, first consider the aboriginal people of the province.

Aboriginal people in this province are a major asset to the regional culture of Newfoundland and Labrador. The aboriginal people living in Northern Labrador are especially vulnerable to any sort of climate change. Newfoundland and Labrador has about 23,450 self identified aboriginal people (Department of Finance, 2006), and high percentages of aboriginal people, especially those in Northern Labrador communities are still reliant on "country food" such as salmon, caribou, and rabbit amongst others (Vasseur, 2008, pp. 124). These foods are especially important because of cultural tradition and the high price of food in Northern Labrador due to transportation costs (Vasseur, 2008, pp. 124). Any change in climate may negatively affect those aboriginal people because a change in climate and a consequent change in habitats may alter the quality and quantity of these food sources (Vasseur, 2008, pp. 124). If such a change were to happen it would also impact traditional knowledge by jeopardizing the process of cultural continuance (Vasseur, 2008, pp. 124). Not just aboriginal people are to be concerned with some of the impacts that will occur in Newfoundland and Labrador. There will also be a long list of factors that impact the province's residents.

Changes in precipitation and temperature will play a role in climate change in the province. In the face of climate change we will have warmer and drier summers and warmer winters (Vasseur, 2008, p. 131). The temperatures in Atlantic Canada show an overall warming trend of 0.3°C, and precipitation increased by approximately 10% between 1948 and 2005 (Vasseur, 2008, pp. 127).

In costal areas such as Newfoundland and Labrador, factors such as storms, storm surges, sea level rise, and sea ice are important to consider. Hurricanes, are the primary cause of surges, that can occur at over 3.6 m once every 40 years, with climate change this is expected to occur on a yearly basis by 2100 (Vasseur, 2008, pp. 132). Proof of sea level rise on the island of Newfoundland can be seen at Ferryland, where water has risen 30 cm in 400 years (Vasseur, 2008, pp. 132-133). Sea Ice will also be affected by climate change with more persistent ice around the Northern Peninsula and Labrador (Vasseur, 2008 p. 134). This would drive ice onshore which would obstruct harbours, block drainage at the head of estuaries and coves, and

cause some localized flooding and damage coastal infrastructure (Vasseur, 2008, p. 134). Moving away from the direct impacts and factors of climate change its important now to consider exactly how various eco regions will be effected and to what degree they will be effected.

Climate change will also affect terrestrial ecosystems, coastal zones, marine ecosystems, and fresh water in Newfoundland and Labrador. The shift expected with climate change can cause such thing as loss of habitat, extirpation or extinction of plants/animals, the arrival of invasive species, sea-level rise, erosion, flooding, diminished amounts of drinking water, it will also cause changes in temperatures, sea ice duration/extent, beach usage for breeding/feeding/nesting, as well as changes in the distribution and commercially harvested fish species (Vasseur, 2008, pp. 135 - 145). All would have varying impacts on the province and could cause issues with other sectors, like transportation.

Beyond the climatic impacts to Newfoundland and Labrador, what will Newfoundland and Labrador contribute greenhouse gas emissions? The province increased its total green house gas emissions to ~10,300 Kt/ CO^2e in 2007, which was an increase of nearly 1000 Kt/ CO^2e from the province's 2006 numbers (OCCEEET, 2010, p.6). According to the province's 2007 Focusing Our Energy document, a directional policy for the energy sector, the proportion of greenhouse gasses emitted by sector are as follows: transportation sector (37%), fossil fuel & mining (30%), electricity and heat generation (12%), non-energy sources (10%), residential/ commercial/ institutional (8%), manufacturing industries (3%), agriculture and forestry (Under 1%), and construction (Under 1%) (Department of Natural Resources, 2007, p. 51). These emissions, per capita, make the average resident of Newfoundland and Labrador contributes about 20 tonnes of greenhouse gases to the atmosphere. This places Newfoundlanders and Labradorians 6th in the country behind residents of Alberta, Saskatchewan, New Brunswick, Northwest Territories, and Nova Scotia (Government of Quebec, 2007, p. 12) In per capita terms, Newfoundland and Labrador is a big contributor to green house gas emissions in Canada.

Newfoundland and Labrador is significantly impacted by climate change and the province's inhabitants are high emitters of greenhouse gases which cause climate change, therefore developing effective climate change policy is very important for this province. To date there has been some positive work done in Newfoundland and Labrador, but there is also room to improve a great deal. In the coming sections I discuss both the progress to date and what is needed based on successful cases. Before looking at what is been done in other jurisdictions, however, it is important to consider what makes successful climate change policy.

Theoretical Approach: Jaccardian Policy "Portfolio"

Action must be taken to help decrease greenhouse gases in Newfoundland and Labrador. The best policy approach for that decrease should be one that has worked in various other jurisdictions and must also work in our own. A group of leaders in climate change policy, Jeffery Simpson, a distinguished Canadian political commentator (Globe and Mail, 2010), Mark Jaccard, Professor at the School of Resource and Environmental Management at Simon Fraser University (Simon Fraser University, 2010), and Nic Rivers, currently a doctoral candidate at the School of Resource and Environmental Management of Simon Fraser University (MKJA, 2010) introduce a very specific idea that would be the most effective for this area. This idea is one of a hybrid or

portfolio approach that combines the idea of several different theories: first including command and control regulations, secondly financial disincentives, thirdly market-oriented regulations, and finally voluntarism and information.

First, command and control regulations are those regulations that "mandate specific emission levels, and energy efficiency standards with non-compliance incurring stringent financial or legal penalties" (Jaccard, 2005, p. 271).The most important rule that Simpson, Jaccard, and Rivers cite is the need for "compulsory requirements" because of their "guarantee of action" (Simpson, 2007, p. 199). However, on their own, command and control regulations may not be as effective because they usually provide no incentive for companies to innovate beyond the legal requirement (Jaccard, 2005, p. 272). It is important to consider this along with other regulations.

A second policy tool is financial disincentives which are such things as charges, levies, fines, and other financial penalties and can apply to emissions (Jaccard, 2005, pp. 274-275). If set correctly, they are assumed to promote economic efficiency and do not involve government in setting how much a person, business, or industry has to pay (Jaccard, 2005, p. 275). For Simpson, Jaccard, and Rivers it is important that policy should minimize its drag on the Canadian economy so they advise that policies be market-based (Simpson, 2007, p. 199). Those financial disincentives are effective because taxes send the same financial signals to industry, business, and individuals which encourage them to seek better, more environmentally friendly technology. This not only helps the environment, but also leads to cost savings for those groups (Simpson, 2007, p. 199). Such financial disincentives should be phased in over time and become stronger instead of being fully imposed at once, giving people, business, and industry time to comply with incoming standards (Simpson, 2007, p. 201). It is also important that these policies are effective and economically efficient as politicians constantly are looking for the administrative feasibility and political acceptability of any given policy (Simpson, 2007, p. 201). Consideration must be given to what is easiest to administer; for example, a carbon tax is easy to administer because it is directly linked to the use of any energy resource, based on consumption, while a cap-and-trade system could turn out to be very complex and something that is very difficult for the uninformed voter to understand (Simpson, 2007, p. 202). Voter acceptability of any policy, especially a carbon tax, is generally not viewed highly by tax payers, therefore this policy would be negative for political careers, which is a consideration when a politician is making a decision (Simpson, 2007, pp. 202).

Another example of a policy that works best in a grouped hybrid approach is market-oriented regulations. Market-oriented regulations, or emissions cap and tradable permits (ECTP), refer to policies whereby the government sets a maximum level for emissions, then allocates tradable emission permits to all emitters covered by the program so that the total allowed by the permits equals the emissions cap (Jaccard, 2005, p. 282). This is effective because when industry does not meet their cap, they are able to sell extra credit for additional profit. Market-oriented regulation does have some negative effects as well. Such a policy may be viewed as the government harassing an area because any such environmental policy may negatively impact a local industry or business. This may immediately lead to job loss, which is fairly important to the voting public (Simpson, 2007, p. 203).

Voluntarism combines information and moral suasion campaigns in an effort to convince businesses and consumers of the ethical and self-interest benefits of actions to reduce energy and

material use, and resulting pollution (Jaccard, 2005, p. 280). This can include such things as advertisements, labelling, brochures, and awards (Jaccard, 2005, p. 280). These are important as a part of a larger hybrid policy that is used to keep the public educated and informed on what is occurring and how they can participate to the fullest extent. It is generally accepted that these programs are not effective in making the deep cuts that are needed to for effective change on their own (Simpson, 2007, pp. 204). Various governments in Canada have been trying such methods for years yielding little to no success in reductions in the greenhouse gas emissions (Simpson, 2007, pp. 204). Yet, they are critical as a larger policy which is important for the hybrid policy.

When considering policy, it must be viewed on its environmental effectiveness, economic efficiency and, administrative and political feasibility (Jaccard, 2005, p. 290). Although none of the policies that Simpson, Jaccard, and Rivers suggest performs perfectly against all four criteria, it is important to combine them to have one larger hybrid/portfolio policy that acts as one (Jaccard, 2005, p. 291). Any policy considered by any government must incorporate strong regulations that are coupled with financial penalty if an industry or business does not comply (Simpson, 2007, p. 204). Such policy, therefore, ensures that polluters pay for the social cost of any action. This will alter behaviour because industry and businesses are very concerned with the amount of money they can make, and will develop so that they, too, can make/save money (Simpson, 2007, p. 205).

Why it is important to implement such policy? It is important because these policies will help influence what people do to combat climate change, which could have a major impact on Newfoundland and Labrador. So the question remains what exactly is the province doing?

Current Newfoundland and Labrador Climate Change Policy and Action

Newfoundland and Labrador has two positive items that it has been working on that have the ability to produce positive results for the province. These two things are the position of the climate change secretariat and on its renewable energy.

A report from the previous Liberal government dated June 2003, asked "Should government create an office/ secretariat/ branch to co-ordinate climate change or energy efficiency initiatives?" (Department of Environment, 2003, p. 11). The government acted on this in December 2007 when it hired Jackie Janes, who is in charge of the province's new "Office of Climate Change, Energy Efficiency and Emission Trading" established in 2009 (OCCEEET, 2010, p. 8). This was a positive move on behalf of the Williams government, because the province will now have a group officially keeping climate change in the forefront of discussions.

According to a presentation given by Janes, this Office of Climate Change, Energy Efficiency and Emission Trading would officially be responsible for "Developing strategies and overarching policy framework, overseeing international climate change negotiations for Newfoundland and Labrador, developing an evidence base on climate change, undertaking 2-3 policy projects per year, as directed by government, chairing Executive Level Inter-departmental committee and appropriate sub-groups" (OCCEEET, 2010, p. 9). This office overlooks development in climate change initiatives and very adamantly states that it is not a grant funder (OCCEEET, 2010, p. 9). Instead of being a funding agency, the Office of Climate Change, Energy Efficiency and Emission Trading is responsible for starting the initial planning for

projects such as "*A Study to assess the Impacts of an Emission Trading System in Newfoundland and Labrador* (2009), *A Study to Determine Potential Opportunities for Carbon Offset Projects in Newfoundland and Labrador* (2009), and *A Review of Academic Literature Related to Climate Change Adaptation in Newfoundland and Labrador* (2010). From here, this office has a lot of work ahead of itself and staff has been planning for such research as an "Update to the climate change action plan, developing greenhouse gas reduction targets, developing an energy-efficiency strategy, and developing a greenhouse gas strategy for the Energy-Intensive sector" (OCCEEET, 2010, p.11).

Such initiatives from the government of Newfoundland and Labrador are an brilliant change of pace for this government and are very much welcomed. As such, the development of the Office of Climate Change, Energy Efficiency and Emission Trading was an excellent move on behalf of the government. It is critically important that government listen to the recommendations of this office to ensure that the province improves its climate change policy. Beyond the development of the Office of Climate Change, Energy Efficiency and Emission Trading, the provincial government has also been working on two increased renewable energy sources: hydroelectricity and wind.

Newfoundland and Labrador has been making some positive steps in the realm of renewable energy. The province in its own literature prides itself on the fact that "we have the *capacity* to not only provide for our long-term energy security, but also to be environmental leaders in the energy sector" (Department of Natural Resources (DoNR), 2007, p. 2, Emphasis Added). This pledge is echoed throughout its energy plan by stating that "Energy developments must be environmentally and economically sustainable" (DoNR, 2007, p. 3). However, there is a major difference between having the capacity to do various energy projects, and actually moving forward and developing this capacity in hydro-electricity and wind power.

The province has been doing *some* work in the renewable energy sector especially in hydro-electric and wind energy projects. Newfoundland and Labrador boasts that it produces 12% of hydroelectric power in Canada, most notably because of its Churchill Falls Hydro facility in Labrador (DoNR, 2007, p. 2). Hydro-Electricity accounts for about 20% of current world energy production and represents 87% of current world-wide renewable energy production (World Energy Council, 2007, p. 272). In Newfoundland and Labrador hydro-electricity accounts for 85% of the electricity produced (DoNR, 2007, p 31). The current hydro-electric projects in the province create 6,700 MW of energy with major facilities creating more than 100 MW in Churchill Falls, Bay D'Espoir, Cat Arm, & Deer Lake and twenty nine other facilities around the provinces creating under 100 MW (DoNR, 2007, p. 10). In addition, the province believes that it has the potential to create an additional 6,000 MW with other various future projects in the province, most notably from the Lower Churchill Falls project (DoNR, 2007, p. 30) which is expected to generate about 2,800 MW of electricity once completed (DoNR, 2007, p. 32). The Lower Churchill Falls project, which in itself has had many people, like Murray Rudd, former Canadian Research Chair in Ecological Economics, and Nejem Raheem, Senior Lecturer in Economics for Kinship Conservation Fellows believe the project has substantial financial, social, and environmental risks (Rudd, 2009, p. 35). These risks can be amplified if a power corridor from Labrador to the island portion of the province is constructed. Then, the Lower Churchill facility *could* single handily supply the province with the 2,400 MW of electricity it needs, leaving the rest of the electricity to be exported to other states or provinces

for profit by the Newfoundland and Labrador government (DoNR, 2007, p. 6). If the link to the island portion of the province occurs, it *could* effectively shut down the fossil fuel burning, thermal powered generation station in Holyrood which is currently responsible for creating about 25% of the islands energy and producing up to 1.3 million tones of green house gases annually and is ranked as the 42nd highest greenhouse gas emitter in Canada (DoNR, 2007, pp. 38-39 & 51). Although this *could* happen, the Environmental Impact Statement only cites it as a potential and not a definitive reality (Tanner, 2009, p. 9). Thus, the construction of a power corridor from Labrador to the island may have many benefits to those on the island's main power grid. Those not on the province's main power grid, have other issues. That is why it is important that the province establish smaller renewable energy projects to help communities offset their isolated diesel systems, wind is a good option for Newfoundland and Labrador.

Wind power has much potential on the island and in Labrador because wind energy is best produced in coastal regions where temperature changes between land and sea create perfect areas for air mass exchange and therefore excellent regions for wind energy (World Energy Council, 2007, p. 479). Newfoundland and Labrador currently only utilizes about 51 MW of wind energy, but has amongst the best wind energy potential in North America (DoNR, 2007, pp. 6 & 35). Unfortunately, the issue with wind is that it does not constantly blow and cannot provide a consistent supply of energy. It can, however, be an excellent way to cut down on diesel use at those communities using isolated diesel systems, like on the island of Ramea (DoNR, 2007, pp. 37). Other methods can also be used to mitigate the uses of diesel energy, which are also being explored by the province, include tidal energy which can also help in the attempt to bring down the province's greenhouse gases emissions.

The province of Newfoundland and Labrador currently has about 85% of its energy created with renewable resources. If the province were to take action with planned hydro-electric projects and with wind energy, Newfoundland and Labrador could have some 98% of its energy created with these cleaner renewable resources which would be an amazing feat for the province to boast about (DoNR, 2007, pp. 52). These are excellent examples of things that this province is doing right. Newfoundland and Labrador has had some progress in certain areas of Climate Change planning, like its climate change office and renewable energy, but it still has a lot to learn. What better places to learn from, than to the Canadian provinces that are doing it right.

Lessons from Canadian Climate Change Policy Leaders

According to the David Suzuki Foundation both Quebec and British Columbia are at the forefront of climate change policy action in Canada. I draw on these cases to inform Newfoundland and Labrador policy directions. Quebec currently is a Canadian environmental leader and even more ambitiously it "has positioned itself as a North American leader in the struggle against climate change" (Sierra Club of Canada, 2008, pp. 18), as stated in its 2008 climate action plan entitled *Quebec and Climate Change: A Challenge for the Future.* As for British Columbia, it first officially stated its intent towards the environment in February 2007 during its speech from the throne when Lieutenant Governor Iona Campagnolo stated "[t]he science is clear. It leaves no room for procrastination. Global warming is real" (Sierra Club of Canada, 2008, p. 18). Since Quebec's and British Columbia's speech from the throne, both governments have been creating climate change policy in five primary areas: carbon taxing,

transportation, timelines and targets for action, cap-and-trade and internal government action. Together, these policies form a portfolio for climate change policies as suggested by Jaccard through his "hybrid" policy idea.

Carbon taxing plays an integral role in the hybrid/portfolio approach. Quebec and British Columbia are the first provinces to implement Carbon Taxing in Canada. Quebec was the first to implement a carbon tax, while British Columbia was the second to implement a carbon tax which had an aim of reducing greenhouse gas emissions. Quebec's aim is to have a carbon taxing system in place that had an overall aim to raise funds for various environmental causes as opposed to deterring business from carbon usage. Quebec has its modest carbon tax set at $2.00/ tonne of emission while British Columbia has taken a stronger stance with the tax initially set at $10.00 per tonne of carbon dioxide emission which will rise by $5.00 per year until 2012 where carbon emissions will be priced at $30.00 per tonne of emissions (David Suzuki Foundation, 2008, pp. 13). Quebec's carbon tax, albeit small, is still an excellent step in the right direction. This tax is expected to raise approximately $200 million in tax revenue per year for the province which will be funnelled toward things like public transportation (David Suzuki Foundation, 2008, pp. 43). The carbon tax in place in British Columbia, unlike the plan in place in Quebec, has been designed to be revenue neutral with the income being returned to citizens in the form of rebates to low-income earners, and reductions to personal, corporate, and small-business taxes (David Suzuki Foundation, 2008, pp.13). According to government consultants, if the plan remains at $30.00 per tonne, the plan should reduce British Columbia's emissions by three million tonnes (David Suzuki Foundation, 2008, pp. 13).

Either carbon tax plan could be a first step for Newfoundland and Labrador. The Quebec Plan could do positive things such as help fund better public transit in larger centres like St. John's, Mount Pearl, Conception Bay South, Paradise and Corner Brook. In addition consideration to add more public transit in other provincial centres like Stephenville, Grand Falls-Windsor, Gander, Clarenville, Conception Bay North, and Labrador City. The British Columbia Plan could also work well in Newfoundland and Labrador, as our major contributors to greenhouse gas emissions is the oil and gas industry and a carbon taxing system would force this industry to introduce greater checks and balances to ensure that its emissions could be reduced.

Next, transportation is a major contributor to greenhouse gasses and is a policy focus for both Quebec and British Columbia. Transportation is a major contributor to the greenhouse gas emissions in all Canadian provinces, and that is no exception in Quebec and British Columbia. In British Columbia transportation accounts for about 36% of greenhouse gas emissions, also it is the largest source of personal greenhouse gas emissions, accounting for about 58% of average household emissions (Government of British Columbia, 2007, p. 26). To address this problem, both provinces have been making positive steps in further regulating the transportation sector. Quebec has adopted policy that has taken action to allow low speed electric vehicles on the road and programs aimed at ensuring truckers have well maintained vehicles (Government of Quebec, 2008, p. 22). British Columbia has developed a pilot project in cooperation with Western American states to develop hydrogen fuel cells, creating a test project entitled "The Hydrogen Highway, from B.C. to Baja California" (Government of British Columbia, 2007, p. 31). Both British Columbia and Quebec have also taken action on tailpipe emissions by adopting California emission standards. British Columbia also took positive action on fuel, through its

"low-carbon fuel standard" which aims to lower the average carbon intensity of transportation fuels by about 10% by the year 2020 (Government of British Columbia, 2007, p. 30). Also relating to fuel consumption, the province of Quebec has set up a differential licensing fee that "favours reduced vehicle pollutant and GHG emissions, with additional fees levied on high displacement vehicles (engine volume in excess of four litres) that are reinvested in public transit" (Government of Quebec, 2008, p. 22). Similarly, British Columbia is investing $14 billion in public transport in an attempt to expand and double rider-ship on its public transportation (Government of British Columbia, 2007, p. 31). Such a plan is excellent method to cut emissions from the transportation sector by giving riders a choice of reliable public transit system. The funding also set aside money to invest in clean-technology buses that will reduce greenhouse gas emissions and other air contaminants from both the busses and vehicles by 4.7 million tonnes cumulatively by 2020 (Government of British Columbia, 2007, pp. 31-32). Both provinces have introduced timelines and targets, some better than others.

Third, both Quebec and British Columbia have set timelines and targets that each government has to follow in order to make cuts to its greenhouse gas emissions. Quebec has chosen to follow Kyoto, while British Columbia has set up its own timeline that does not meet the same level as Kyoto (David Suzuki Foundation, 2008, p. 9). Quebec cites in their climate action plan that "The Kyoto Protocol is a necessary first step" (Government of Quebec, 2008, p.10). This statement from any government is positive, as it cites the importance of the Kyoto Protocol to world climate change and commits to the protocol. The Quebec government officially signed on to Kyoto in 2007 when it "affirmed by decree" that it would follow Kyoto[1] and it would implement it in its action plan (Government of Quebec, 2008, p. 10). It is important for Newfoundland and Labrador to consider something similar for its own policy. Like targets and timelines, it is important to consider further methods to cut greenhouse gas emissions; another method is cap-and-trade programs.

Both Quebec and British Columbia have been working to develop a cap and trade system for their provinces. Both provinces are members of the Western Climate Initiative (WCI), one of the main goals of the WCI is the creation of a regional cap-and-trade system that limits the net amount of greenhouse gas emissions from different sectors like transportation (David Suzuki Foundation, 2008, p. 14). Quebec has started this process with Ontario to set up a new cap-and-trade system. Both provinces announced that they would "jointly implement a cap-and -trade system by 2010 for heavy industry" (David Suzuki Foundation, 2008, p. 42). The cap and trade system adopted by the two governments would see "a trading system that would put caps on greenhouse gas emissions. Big polluters that exceed those limits would have to buy credits from companies that come in under the cap, making it pay to go green" (CBC, 2008). This plan would also ensure that there would be a better partnership between Quebec and Ontario to integrate economies and to create more public transportation links (CBC, 2008). British Columbia has also been proactive in creating its own cap-and-trade system. Its first mandated requirement of the cap-and-trade system came into affect on January 1, 2010. The new rule requires that "all facilities in British Columbia that emit over 10,000 tonnes of greenhouse gases annually to

[1] What is most important about the Kyoto protocol beyond the fact that it is an internationally accepted and adopted piece of *legislation* is that it puts in place a legally mandated timeline on which signatories have to abide (United Nations, 1998, p. 3).

publicly report their emissions" (Government of British Columbia, 2009). Such a plan could easily be considered for Newfoundland and Labrador that would either directly participate with Quebec, like Quebec does with Ontario, or it could work together with the other Atlantic Canadian provinces to create an Atlantic Canadian exchange. Action within government is also important to show how committed any administration is to change. This is why internal government action is important.

Finally, the last successful policy measure to bring down emissions is internal government action. The government of British Columbia has made the decision to also take action on its own emissions. The province has adopted some comprehensive policies to ensure that the government will be carbon neutral by 2012 (David Suzuki Foundation, 2008, p. 17). British Columbia has also played a pivotal role in the creation of a Climate Action Charter which is a "memorandum of understanding with local governments, to collectively address greenhouse gases" (David Suzuki Foundation, 2008, p. 17). Beyond the provincial governments own actions, it also encouraged communities to step up to the challenge with this Climate Action Charter. As of September 4, 2009 176 local governments in British Columbia had signed on to the pledge for carbon neutrality by 2012 (Government of British Columbia, 2009). Some degree of action has been occurring in Newfoundland and Labrador, but not nearly comparable to British Columbia. The Newfoundland and Labrador government committed to having 25% of its vehicle purchases to be hybrid vehicles, but a stronger commitment towards carbon neutrality should be considered in the near future. Similar to British Columbia, the provincial government in Newfoundland and Labrador should make a call to action to various communities to have their actions carbon neutral. The actions taken by both governments do combine with some of Jaccard's theories.

Three prominent ideas that Jaccard has in his hybrid approach can be found in the climate change plans of Quebec and British Columbia: financial disincentives, command and control regulations, and emission caps. First, financial disincentives can be found in Quebec and British Columbia's use of carbon taxing. Secondly, command and control regulations are found in the mandated regulations that both provinces have for its transportation regulations. Finally, both provinces are working toward an emission cap and trading system. These are all essential portions of Jaccard's hybrid approach. So considering the actions taken by Quebec and British Columbia what must Newfoundland and Labrador do to also become a leader like them?

Emulating the Leaders: Policy Recommendations for Newfoundland and Labrador

Newfoundland and Labrador could learn from the policies discussed earlier in Quebec and British Columbia policy sections and strengthen its climate change action plan. Based on the two leading cases, a successful plan would set ambitious targets, introduce carbon taxing, and set stronger standards. Newfoundland and Labrador must apply the best of Quebec and British Columbia policy along with the other recommendation from Jaccard's hybrid/portfolio policy approach.

Currently, Newfoundland and Labrador has failed to set progressive, ambitious targets. Unlike many of its counterparts in Canada, the provincial government in Newfoundland and Labrador has not set targets and timelines for greenhouse gas emission reductions. Unlike Quebec and British Columbia, the government of Newfoundland and Labrador tends to take a relatively poor stance on any sort of commitment towards climate change. The Department of

Environment and Conservation Strategic Plan 2006 – 2008 states that "The provincial government will carry out its climate change objectives as the budget allows and, *where possible*, will collaborate with the federal government to achieve these objectives" (Department of Environment and Conservation, 2007, p. 11, emphasis added). This is a weak position; the government should make the environment a priority by setting forward a stronger climate change plan. The current Newfoundland and Labrador plan would seem to be a bare minimum approach when compared to Quebec and British Columbia. The targets that Newfoundland and Labrador follow are the 2001 New England Governors and Eastern Canadian Premiers (NEG-ECP) Climate Change Action Plan (Department of Natural Resources, 2007, p. 52). The NEG-ECP climate change action plan calls for three types of goals, short-term, mid-term, and long-term goals (CENICE/NEG-ECP, 2001, p. 7). The NEG-ECP goals are a short-term aims to reduce regional GHG emissions to 1990 levels by 2010. This would be extended to 10% below the 1990 levels by 2020. The mid-term goal and the long-term goal would be to "sufficiently eliminate any dangerous threat to the climate" which will require reductions of 75–85% below current levels (CENICE/NEG-ECP, 2001, p. 7). There are three major issues with the plan as stated. First, there is no real timeline beyond the 2020 goal to be 10% below the 1990 levels. Secondly, it is not reaching far enough and there are no scientific based deadlines such as those stated in the Kyoto Protocol. Finally, based on the current projected emission data, Newfoundland and Labrador will not even meet the short-term weak NEG-ECP targets (OCCEEET, 2010, p. 6). Instead, the province should consider adopting a new policy that is further reaching then the NEG-ECP action plan. For example, the current policy tabled by Thunder Bay- Superior North M.P. Bruce Hyer of the New Democratic Party (N.D.P.) and originally tabled in 2006 by Jack Layton leader of the NDP, entitled Bill C-311 or the Climate Change Accountability Act, would be a much stronger, timeline oriented policy (Government of Canada, 2009). This bill, C-311 sets out a medium and long-term commitments. The medium-term target would be to have greenhouse gas emission levels 25% below 1990 levels by 2020 (Government of Canada, 2009). The long-term commitment is to have greenhouse gases at 80% below the 1990 levels by 2020 (Government of Canada, 2009). In addition to these commitments there would also be targets set at five year intervals starting at 2015 going through to 2050 to ensure that targets could be met (Government of Canada, 2009). Such a policy would be excellent to use in the framework of creating a new policy for Newfoundland and Labrador.

Newfoundland and Labrador in its *Climate Action Plan* did not include anything relating to a carbon tax system. This idea in Canada[2] has not been overly popular on the national scene, and is commonly attributed as a causing factor when the Liberal Party of Canada lost the 2008 national election. However, on the world stage, carbon taxing has had success. The first successful introduction of a carbon tax occurred in Finland in 1990 (Sairinen, 2004, p. 70). Subsequent attempts have been made to introduce a carbon tax in Canada, with success, as previously mentioned in Quebec and British Columbia. The introduction of a carbon taxing system therefore is a method for the Newfoundland and Labrador government to consider

[2] The idea of carbon taxing in Canada was first introduced in 1989 by various environmental groups to the Mulroney government which would have raised $40 billion dollars of fifteen years to fund a national energy conservation program, reforest two million hectares of land, and complete the national park systems, but this did not succeed (Sierra Club of Canada, 2008, p. 12).

dissuading mineral and oiling companies from doing environmentally unfriendly activities like flaring. Further to financial disincentives, the province must consider more command and control regulations relating to transportation and construction which are significant contributors to greenhouse gas emissions in Newfoundland and Labrador.

In addition to lacking any policy relating to progressive cuts in greenhouse gases, the government of Newfoundland and Labrador lacks formalized standards in provincial vehicle emissions and building codes which is a major issue. According to the David Suzuki Foundation, transportation accounts for 20% of greenhouse gas emissions in Newfoundland and Labrador, yet no policy is in place in the province to attempt to make cuts like those achieved in Quebec, British Columbia, New Brunswick, and Nova Scotia (David Suzuki Foundation, 2007, p. 60). These Province's have adopted the California vehicle emission standards, which are called Low-Emission Vehicle (LEV) standards and are planned in three stages. LEV which ranged from 1994 – 2003, LEV II which is currently the standard running from 2004 – 2010, and in discussion is the LEV III standards which is set to be the standard to be phased in the 2013 – 2022 period (State of California Air Resource Board, 2010, p. 2). The current policies being adopted in Canadian provinces are the LEV II policy, as the LEV III policy has not yet been fully developed or implemented by the state of California. LEV II plan affects passenger cars, light-duty trucks, and medium duty vehicles which account for 50% of purchased vehicles and account for 40% of air pollution in the state of California (California Environmental Protection Agency, 2009, pp. 1-2). LEV II will bring in additional emission controls via increased engine durability, near-zero evaporative emission, and advanced electronic engine management systems (California Environmental Protection Agency, 2009, p. 1). The overall effect of such a plan at LEV II level standards would be a change from a ton of smog-forming hydrocarbons during 100,000 miles of driving in 1965 to approximately 10 pounds in 2010 which is an amazing change (California Environmental Protection Agency, 2009, p. 2). Unfortunately, the current Newfoundland standard is on par with the weak LEV standards of Environment Canada, which is similar to the American LEV standards set by the Environmental Protection Agency (Industry Canada, 2006). Yet, if Newfoundland and Labrador were to adopt the California LEV II standards, it would see that the standard vehicle outlined above under the LEV II scope would see a cut of 40 pounds of smog-forming hydro-carbons per 100,000 miles of driving (California Environmental Protection Agency, 2009, p. 2). However, the provincial government has made a positive step in the purchasing of its own vehicles. In the province's budget and action plan it has put in place the stipulation that 25% of its fleet has to be fuel-efficient vehicles (David Suzuki Foundation, 2008, pp. 61). This is a low commitment, but a first step.

As for building codes, Newfoundland and Labrador needs to update current building standards to ensure that structures in the province are brought up to a minimum standard of environmental design. The provincial government has put in place a minimum standard for all of its future provincial government buildings and projects. As of 2008, all new government buildings and major renovations receiving funding from the provincial government corporations or agencies must exceed the current energy code by 25% and, where possible, also qualify for a minimum silver standard in Leadership in Energy and Environmental Design (LEED) (Department of Natural Resources, 2007, pp. 61). The provincial government should move forward with legislation to strengthen that practice to require not only provincial government buildings, but also for any newly constructed private buildings, to ensure energy efficiency. As

mentioned above, the LEED program has a "green building rating system that encourages and accelerated global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted tools and performance criteria" (Canada Green Building Council, 2010). LEED offers a ranking system ranging from Certified, Sliver, Gold, and Platinum, and status is awarded according to a point system that has been established by the Canada Green Building Council (Canada Green Building Council 2, 2010). If the government were to introduce this system and provide incentives for builders and eventually mandate LEED standards as the building code, then this would also be an excellent help for climate change in the future of Newfoundland and Labrador. The government could move even further to require all provincial buildings be up to a certain standard, this idea was brought forward by the Liberal Party of Canada in their 2008 Election Platform[3]. Implementing such a plan in Newfoundland and Labrador would be an excellent way to get buildings and homes in this province up to a higher standard. Such plans would not only create jobs, but would also implement some of Jaccard's portfolio approach.

When creating this policy for Newfoundland and Labrador it is important to consider Jaccard's hybrid portfolio approach. The targets that have been recommended would put in place financial disincentives via carbon taxing. It would also put in place command and control regulations that would come with vehicle and emission standards. Additional volunteerism and information campaigns would be an asset to ensure that the public was educated on the government's plan. Setting new ambitious targets, the development of a carbon taxing system, and setting more strict standards for such things as transportation and building codes are all critically important steps, but are such policies feasible in for Newfoundland and Labrador?

Political Feasibility

Is the time right in the history of Newfoundland and Labrador to make such progressive moves towards climate change emission reduction? The answer is most certainly yes: the time is right. Newfoundland and Labrador is now a "have" province for the first time in its history (CBC, November 3, 2008). The provincial government is also riding high in the polls, for example in a poll from February 2010 conducted by Corporate Research Associates, show that if the Williams Government went to the polls at that time, 80% of voters would have voted PC, with Danny Williams having a personal popularity of 81% (QMI Agency, 2010). Additionally, 93% of Newfoundlanders and Labradorians are satisfied by the work being done by this provincial government (QMI Agency, 2010). This is the highest popularity rating recorded in not only Newfoundland and Labrador, but in Atlantic Canada in thirty years (QMI Agency, 2010). So the people are surely on the side of the government. Therefore, the implementation of a financial disincentive like carbon taxing, which Jaccard describes as "poor" in terms of political feasibility (Jaccard, 2005, p. 290), would do very little to hurt the current government as it has a staggering lead in the polls.

[3] The Liberal Party of Canada had also suggested a Green Home and Buildings policy, which would have had 50% of all Canadian homes retrofitted by 2020 and 100% retrofitted by 2030. This plan would have had three distinct funding streams eligibility for up to a $10,000 grant, a $10,000 interest free "green mortgage," and finally additional funding for low income families (Liberal Party of Canada, 2008, 27-28).

When governments have considered this policy, they reject it based on the Federal Liberals performance with this policy in 2008. The difference between Newfoundland and Labrador and this example is that the Williams government currently holds a very large lead that the Stéphane Dion Liberals did not enjoy. The Williams government holds 43 of the possible 48 seats in the House of Assembly. The Dion Liberals only held 103 of the possible 308 seats in the House of Commons and were not the governing party, so they could not afford the negativity associated with a financial disincentive. The Liberals loosing that particular election should also not be considered a reason not to support the Liberal policy in Newfoundland and Labrador. During that election people of this province overwhelmingly supported the Liberals by electing them in six of the seven possible seats in the federal government. It is my belief that the current government should feel good about making such a progressive change as this, because they have the people and the province firmly on their side. The key to this position is securing the support of the Premier on the side of climate change. This is a role that has been already been put in place by the government in the form of the Climate Change secretariat. This person has to advocate strongly in the name of climate change policy, once this catches the ear of the premier then positive things can happen.

Conclusion

Dyer states that we must decarbonise our economies wholesale in the immediate future to ensure that we can live comfortably in the second half of this century (Dyer, 2008, p. xii). To do this governments and citizens must make immediate changes to cut greenhouse gas emissions as called for in the United Nations Framework Convention on Climate Change. It is clear that governments must take action, and that action in Canadian provinces comes through policies. These policies must incorporate Jaccard's idea of a hybrid/portfolio approach. This involves the implementation of Jaccard's four policy recommendations. First, comes command and control regulations that would implement such things as stronger building codes and emission standards. Secondly, financial disincentives with the introduction of a carbon tax like Quebec or British Columbia. Third, an emissions cap and tradable permits like those being developed in the other jurisdictions. Finally, inclusion volunteerism and information is important to supplement the other programs and to educate the public on why such policies are required. It is clear that Newfoundland and Labrador has two options and must make a choice. The first option is that the province follows the federal government in its inaction to its eventual demise, as real laggards, in climate change policy that is very outdated and very dangerous for our future as Newfoundlanders and Labradorians. The government does have another choice, however, it can emulate the policy of leaders which avoids the impacts associated to climate change and further grows our economy with projects associated with becoming carbon neutral. There is only one choice in my opinion, and that is the latter option. There is not any reason, not to make this choice, because, by far, it is the right choice.

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