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UNDERSTANDING THE SELECTION OF POLICY INSTRUMENTS IN CANADIAN CLIMATE-CHANGE POLICY[1]

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Abstract: Some aspects of Canadian climate change policy have been extensively studied in recent years. However, studies on Canadian provinces continue to lag. In this paper, we study the differences in instrument choices in Canadian provinces and propose an initial explanation. We use the theoretical framework proposed by Rabe (2004), which suggests the way that policymakers frame the issue of climate change is a main explanation for instrument selection. Rabe's (2004) typology, which was developed in the US context, can be applied to Canada, and an initial operationalization of this theory in the context of the Canadian provinces is proposed. My main conclusion is that the pattern of instrument choices among Canadian provinces is broadly consistent with the one predicted by the theory, notwithstanding important differences. A challenging aspect of climate change policy is that it is often composed of multiple instruments and is justified by policy-makers using numerous frames.

Climate change policy in Canada is an important subject of concern and debate at the public and academic levels. Consequently, the absence of extensive study of provincial climate change policy might come as a surprise. To be sure, some aspects of Canadian climate change policy have been extensively studied by scholars. The process of Canada's Kyoto Protocol ratification is certainly one of those topics (Bernstein, 2002; Harrison, 2007).

Studies have also been published on national climate change policy-making (Simpson, Jaccard, and Rivers, 2007; Paehlke, 2008) programs, and intergovernmental negotiations (Macdonald, Houle, and Patterson, 2011; Winfield and Macdonald, 2007; Bramley and Hornung, 2000; Bramley, 2002), and the role of different policy actors (Macdonald, Brieger, and Fleck, 2001; Macdonald, 2007). However, the study of provincial implementation of measures is still, so to speak, in its infancy. According to Kern (2007), this situation is not unique to Canada and the same observations have been made in the context of Europe and the United States. However, recent works have been published on sub-federal climate change policy for those two areas.

Studies on Canadian provinces are still lagging despite some recent related contributions (Macdonald, VanNijnatten, and Bjorn, 2004; Houle 2007; Winfield et al., 2008). Houle (2007) limits his inquiry to Québec

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climate change policy and compares policy instruments used in that case to the ones used in other atmospheric pollutant issues (such as acid rain and ozone-depletion substances). He found measures to be less coercive in the case of climate change policy and explains it by the numerous activities that generate greenhouse gas (GHG), in comparison with other atmospheric pollutant problems that are generated by a smaller number of activities.

Winfield et al. (2008) propose a study of the interactions between energy policy and climate change policy in some Canadian provinces. While Macdonald, VanNjinnaten and Bjorn (2004) that have provided the more comprehensive and detailed academic work on provincial climate change policy in Canada, their work is more descriptive than explicative. The David Suzuki Foundation is also publishing regularly reports that draw a picture of provincial initiatives and recommend further actions (see for instance Marshall, 2008)[2].

A possible explanation for the few studies on climate change policy in Canadian provinces might be the lack of action on that issue at the provincial level. However, this observation is increasingly debatable. To be sure, before 2002, when Canada's ratification of the Kyoto Protocol occurred on December 17th, most Canadian provinces did not have a climate change action plan (see annex, table A1). Two notable exceptions are Québec and British Columbia, each of which adopted their first climate change plan in 1995 (although relatively laconic and short on actual measures). However, since then, all provinces developed their own plan and some of them have adopted legislation[3]. Consequently, it is increasingly difficult for an attentive analyst to disregard the efforts made by Canadian provincial governments to adopt and implement meaningful mitigation or adaptation measures.

Those plans include a large number of selected instruments, including regulation, fiscal incentives, taxes, and voluntary measures. However, each province has adopted a particular mix of policy instruments.

In this paper, we study those differences in instrument choices among Canadian provinces and propose a first explanation. In order to do so, we use the theoretical framework proposed by Rabe (2004), which insists on the framing of the issue of climate change, by policy-makers and policy entrepreneurs, as the main explanation for instruments selection in climate change policy in a sub-federal jurisdiction. Although Rabe (2004) develops a typology to explain variation in instruments choice amongst American states, we argue that it can be applied to Canadian provinces and propose a first operationalization of this theory in the context of Canadian province. Also, this research is based on the study of climate action plans to determine both the selected instruments and the framing adopted by policy-makers, using different sections of the plans to assess those two variables.

There are important reasons why we should study provincial initiatives on climate change and propose an explanation of the selection of policy instruments. First, climate change is arguably one of the most pressing problems of our time. Canada, despite its ratification of the Kyoto Protocol, has received many criticisms, domestically and internationally, concerning its climate change policy. However, without a precise knowledge of what has been achieved, the assessment of the efficiency or the effectiveness of the past and actual policies of Canadian governments can only be tentative. The first necessary step is to make a survey of the initiatives selected by all governments, including the provinces.

Second, any proposition of action for Canadian governments on climate change must first acknowledge the driving forces that have shaped the policies on that issue so far. An explanation of the evolution of

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[2] Since the publication of this article, several additional reports were published on provincial climate change policy including: Holmes et al. (2012) and NRTEE (2012).

[3] Last to date is Nova Scotia which presented its climate change plan in January 2009. Among the territories, Nunavut did not have an action plan on the topic but Yukon and Northwest Territories have one. However, this paper only addresses the cases of Canadian provinces and the territories are left aside for further study. Since the original article was published, several additional climate change plans were published including Newfoundland and Labrador's 2011 plan and Québec's 2013-2020 plan. In addition, now several provinces have introduced legislations and regulations to address climate change including : Québec, British Columbia, Manitoba, Saskatchewan, Alberta and Nova Scotia.

climate change policy is necessary to understand the resistance which a specific proposal will encounter. Beside their theoretical merits, the adoption of particular policy instruments and their implementation is driven by political forces. We reject the view, implicit in many criticisms of the actual Canadian climate change policy, that policy-makers are simply irrational and incapable of understanding the benefits of proposed measures (for instance, carbon tax or cap-and-trade system). Rather, we contend that policy-makers are influenced by frames and the particular context that take place at the moment where they take their decisions. Policy-makers are in the middle of a struggle between various powerful actors proposing contradictory causal stories about the problems. Many objectives and constituencies have to be satisfied. Proposals of particular policy instruments often encounter powerful forces, interest groups that oppose changes that they perceive as having adverse impacts on them. As mentioned, this study focuses on policy frames and their influence on policy instrument choice.

Third, recent literature on public policy has focused on comparative studies in order to develop and test theories. This 'comparative turn' is seen as an important development in that literature and has shown promising results compared to single case studies, which often characterize the study of public policy. Canadian provinces have been identified as cases susceptible to generate interesting comparative studies that could foster our understanding of public policy development and provide empiric tests for public policy theories (Imbeau et al., 2000). Despite having the same political institutions, and being embedded in the same federation, the various contexts of Canadian provinces provide interesting independent variables that might be observed.

In the first section of this paper, we state the research questions and the hypotheses that we propose to test. In the second section, we define more precisely the content of climate change policies and in particular the policy instruments that are selected to achieve their objectives. The fourth section addresses the framing of the issue of climate change and presents our observations in the case of Canadian provinces. In the final section we discuss the impact of the framing observed in each on the selected policy instruments and assess the overall utility of our operationalization of Rabe (2004) theoretical framework for the study of provincial climate change policy.

■ RESEARCH QUESTIONS AND HYPOTHESES

In this paper, we propose a first survey of provincial initiatives on climate change that will focus on selected policy instruments mentioned in provincial climate change plans. Our two basic research questions are the following: 1. which policy instruments are included in provincial climate change plans? 2. what explanation might be proposed for the different policy instruments selected?

The first question might be answered by a survey of the different measures mentioned in provincial climate change plans. Some theoretical and methodological considerations are important if we want to produce a useful survey that will include the critical characteristics of the chosen measures.

A vast array of explanations for the observed variations might be proposed. However, as a first step, we discuss primarily an explanation proposed by Rabe (2004) in his seminal studies on climate change policy in American states: the framing of the climate change issue in each jurisdiction.

In this paper, we propose a first empirical test of framing in climate change policy in Canadian provinces and, in particular, the effect of several framings of that issue on policy instrument choices. Our hypotheses are the following:

H.1: When policy-makers consider climate change as a serious environmental threat, coercive policy instruments will be used (such as regulatory norms and standards).

H.2: When policy-makers consider climate change as offering economic development opportunities for their province, market-based instruments will be used (such as carbon markets and financial disincentives—which include carbon taxes).

H.3: When policy-makers consider efforts to mitigate greenhouses gas (GHG) emissions as a threat to the economic growth of their province, they will use non-coercive policy instruments (such as voluntarism) or no policy instruments at all.

Finally, we discuss other possible explanations for the variation observed in climate change policy in Canadian provinces and propose future steps that might be taken to expand the study of this topic.

■ DEFINING CLIMATE CHANGE POLICY

As mentioned by Howlett and Ramesh (2003) general definitions of public policy describe them as oriented toward specific goals and including actions to achieve them. Climate change plans published by governments appear to be an archetype of a public policy. They all provide objectives[4] and specify which measures or programs will be implemented to achieve them. In most cases, they also specify the societal actors that are targeted by the proposed actions. Consequently, climate change plans provide a clear and accessible picture of the formulation of the climate change policy of a given jurisdiction. Therefore, they are the principal focus of our study.

Drawing boundaries between policy domains is a difficult but necessary task in policy analysis. Many researchers have adopted an expansive view of climate change policy and have tended to include a large number of activities. In focusing on climate change plans, we adopt a more limited view of climate change policy as defined by the intended actions of policy-makers to address this issue. To be sure, laws and regulations related to climate change would also, ideally, be taken into account and can provide useful information on the policy formulation. However, not all provinces have adopted climate change related legislation and/or regulations (see table A1).

The element of the formulation of a policy that is perhaps the most useful to develop hypotheses is the policy instruments selected[5]. Howlett and Ramesh (2003: 87) propose the following definition of policy instruments (also called policy tools or governing instruments): "[…] actual means or devices governments have to their disposal for implementing policies, and among which they must select in formulating policy." This simple definition appears to be consistent with most works on the field. However, more precise definitions have been developed for different categories of instruments (e.g. regulation, market-based instruments, etc.).

Many classification and typologies of policy instruments have been proposed insisting on various dimensions. In this paper, we insist on the degree of coercion of the selected policy instruments (Macdonald, 2001; Vedung, 2003; Hood and Margetts, [1983] 2007).

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[4] Objectives in climate change policy might be defined in terms of intensity (ratio to production) or absolute—"hard cap"—reduction. Governments can also put emphasis on the necessity to mitigate—reduce GHG emissions—or adapt to the consequences of climate change.

[5] However, it is also possible to formulate hypotheses for policy objectives and targets. We choose to focus on policy instruments because, arguably, this component is the more debated. Each policy instruments has a direct impact on the fortune or misfortune of different policy actors. Regulatory norms, for instance, might require new investments that will have an impact on the profit and/or the competitiveness of an industry. If overall objectives are sometimes debated, it is only in the perspective that if they are ambitious, actors fear that coercive or costly instruments will be imposed.

Instruments for Climate Change Policy

Jaccard, Nyboer, and Sadownik (2002: 177) have presented an overview of the policy instruments available for GHG emissions reduction, in the Canadian context. They classify policy instruments on a continuum according to their "degree of compulsoriness" (or coercion) which express "[…] the extent to which a certain behaviour is required by external forces."

According to them, a fully compulsory policy specifies exactly what must be done and severely punishes noncompliance. Less compulsory policy may require some action but confers certain flexibility for the firm and the household. Finally, policies are fully non-compulsory if the firm or the household has the option to do nothing, without incurring any negative consequence (idem).

In that perspective, 'information and moral suasion' are the less compulsory instruments, followed by 'financial incentive and subsidies', 'cap-and-trade' (not showed on their original continuum but mentioned at p.182), 'financial disincentives (taxes)', and 'command-and-control regulation' (which is the most coercive) (Jaccard, Nyboer, and Sadownik: 2002, 177-8).

Of course, those are only the general types of policy instruments and a long list of examples can be provided for each. However, in our research, we simply make prediction for the type of instruments that will be used. Indeed, predicting the particular program that will be implemented in a given province is very hard since governments innovate and adapt a particular type of policy instruments to their specific circumstances.

Based on our review of the literature we propose the following instruments types: command-and-control (or regulatory norm) (5); financial disincentives (taxes) (4); cap-and-trade systems (3), fiscal incentives (subsidies and tax credits) (2); information and moral suasion (voluntarism) (1). Instrument types 3, 4, and 5 also represent market-based instruments (see Jordan, Wurzel, and Zito, 2003).

Instruments in Canadian Provincial Climate Change Policy

Table A1 and A2 in the annex provide a first overview of the various climate change plan and policy instruments adopted by Canadian provinces. For the purpose of this paper, we conduct a comprehensive review of policy instruments included in provincial climate change plans.

Overall, almost eighty different policy instruments were identified and classified under each instrument types. We identify twenty regulatory instruments including: GHG emissions standards (absolute caps), energy efficiency norms for buildings (private or public-owned), GHG emissions standard for fuels, and renewable energy regulatory targets (port-folio standards).

We also identify forty instances of market-based instruments including fiscal incentives and fiscal disincentives including: funding for research and demonstration for various form of energy (biofuels, hydrogen, wind, etc.), cap-and-trade systems, carbon taxes, tax incentives for energy efficient buildings and appliances, and funding for public transit. Finally, we identify sixteen instances of information and moral suasion-based policy instruments (voluntarism) including: public information campaigns on various topics and voluntary emissions reduction agreements between provincial government and particular industries[6].

Some instruments have been selected by most Canadian provinces. For instances, most provincial governments engage their ministries to adopt measures that aim for the reduction of their own GHG emissions, propose investments in public transit, adopt regulation for energy efficiency of appliances and buildings. Finally, many provide funding for research on the consequences of climate change and/or new technologies. The adoption of those measures is significant but unsurprising since they do not encounter any

[6] The format of this article did not allow us to present all our data (although the table A2 summarized it). They will be provided upon request to david.houle@utoronto.ca.

opposition in most cases. They rely mostly on public spending (or fiscal incentives) and their overall cost is spread across the entire society.

However, some measures are adopted only by a few provinces. The first example is the adoption of most advanced market-based instruments and fiscal disincentives which include carbon tax and cap-and-trade. Only Manitoba (2008), Québec (2006), Ontario (2007), and BC (2008) have committed so far to implement this type of policy instrument, in collaboration with other Canadian provinces and American states. In their most recent climate change plan, Québec, BC, and Manitoba have already selected a carbon tax (the one of Québec being very modest and the one of Manitoba not fully implemented) and the four jurisdictions are involved in the Western Climate Initiative (WCI)[7] and are committed to the objective of implementing a cap-and-trade system. Toward the industrial sector, some provinces have opted for no action (Newfoundland and Labrador), voluntary agreements (such as Québec 1995 and 2000 plans), or spending on research of new technologies (Saskatchewan 2007). Some provinces, such as British Columbia (in its 2008 plan) and Nova Scotia have included legislative reduction targets. Meanwhile, Alberta in its 2007 plan adopts an intensity-target regulation for its industry.

In the energy sector, many provinces have adopted renewable energy portfolio standards or have committed to expand their use of renewable energy (hydro, tidal, solar, biomass, etc.). For instance, Nova Scotia (2007) included in a recent regulation a renewable energy objective for Nova Scotia Power. Finally, some provinces committed to close their coal-fired plants, such as PEI (2001) and Ontario (2007). Others have preferred to rely on carbon capture and storage technologies to reduce the impact of their coal-fired plants such as Alberta (in both its 2002 and 2008 plans) and Saskatchewan (2007). Finally, Manitoba, in its 2002 plan, proposes to convert its coal-fired power plants to natural gas. How might these variations be explained?

■ USING POLICY FRAMING AS AN EXPLANATION

In the context of American states climate change policy, Rabe (2004) insists on two dimensions to explain climate change policy choices. The first one is the framing of the climate change issue and the second is the policy labelling of initiatives.

Framing has been addressed by many authors since the seminal contribution of Tversky and Kahneman (1986), including—in political science—Fisher (2003) and Druckman (2004). Basically, at least in the original interpretation of Tversky and Kahneman (1986), framing has been seen as a psychological phenomenon that constitutes an obstacle to rational reasoning. Depending on how a problem is framed, in terms of saved or sacrificed lives for instance, the preference of individual decision-makers will change and the action chosen will vary accordingly.

With Fischer (2003) and many others, the concept of framing has been expanded and applied to the study of public policy. Fischer (2003) contends that frame is an "organizing principle that transforms fragmentary information into a structured and meaningful whole." Such frames in policy provide the selection of information useful to make normative judgment and guide action. Rabe (2004: 29) offers a more precise definition contending that issue framing "[…] reflects the most common way in which a policy issue has come to be characterized—or defined—in a given political system […]."

[7] The Western Climate Initiative (WCI) is a regional initiative lead by California which involves American states and Canadian provinces which are committed to develop a cap-and-trade system for GHG emissions. In November 2011, all American states but California left the WCI. Despite this setback, emissions trading systems are scheduled to start on January 1rst, 2012 in Québec and California.

He also contends that, in the case of climate change policy among American states, it is possible to identify three framings of the climate change issue: environmental threat, economic development opportunity, and economic threat (Rabe, 2004: 30-32).

One should add that it is possible that several frames are present, simultaneously, in a given jurisdiction, even in competition, with different groups of actors or policy entrepreneurs lobbying for their adoption. However, it appears unlikely that all frames will be present or, at least, equally important in the final formulation of the policy, since their implications are often contradictory in terms of policy objectives and instruments. It is why we focus in our research on the dominant framing that we have identified reviewing climate change plans of Canadian provinces. Then, we use it as an independent variable to explain the observed variations in Canadian provinces regarding policy instruments selected.

Rabe (2004: 30) also uses the variable of policy labelling which "[…] describes the explicit language used to describe policies that may be attempted, given the opportunities provided (or constraints imposed) by issue framing." He argues that in some states, where public opinion is particularly hostile to climate change science and the Kyoto Protocol, some policy entrepreneurs and elected officials have chosen to downplay the effect of the measures they advocate in terms of GHG reductions (e.g. Texas renewable energy portfolio standard). In those cases, the policy label will be implicit rather than explicit. However, in Canada, all provinces explicitly address the issue of climate change. Consequently, the concept of labelling is of little use in this context. Moreover, if policy are not explicitly recognized (or labelled) as climate change policy, we argue that they should not be included in a study of climate change policy but rather as elements of other policies that might interact with climate change policy instruments and goals.

In our hypotheses we used the three types of framing mentioned by Rabe (2004) and observe them in climate change action plans. When more than one framing is present we identify the dominant one.

Climate Change as an Environmental Threat

In the first case, when climate change is perceived as an environmental threat, Rabe (2004: 31) contends that officials "[…] determine that climate change is a serious environmental problem: if ignored, the accumulation of greenhouse gases may pose a significant environmental threat to that [jurisdiction]."

Rabe (2004: 31) contends that a policy response designated to reduce GHG emissions is warranted. However, the jurisdiction response "will be tempered by an attempt to minimize economic disruption and will, to the extent possible, use any intervention available to foster economic development." Policy entrepreneurs have, in that context, maximum latitude to frame climate change as an issue that requires a serious response and to craft significant policies.

In general, the arguments that characterize this framing vary along the line that climate change will have impacts on particular vulnerable groups, on infrastructures, water supply, or particular industries (fishing, tourism, forestry, and agriculture are often mentioned). Often, a mechanism is proposed that links GHG emissions to GHG accumulation in the atmosphere, to change in climatic conditions, extreme weather events and/or sea-level. It is those changes that have an impact on the jurisdiction[8].

In climate change plans where this framing is dominant, numerous instances and observations are given of changes in average temperatures, rise in sea-level, and extreme climatic events (tropical storms, drought, heat waves).

One has to be careful about how likely consequences are described. They can be indicated as benign or positive, which will be inconsistent with the framing. Finally, a distinction might be drawn between perceiving

[8] Reading the recent report of the Government of Canada, *From Impacts to Adaptation: Canada in a Changing Climate* (Lemmen et al., 2008), it appears that all provinces are expected to experience important consequences of climate change. Consequently, the decision to indicate or not some of those consequences in the climate change plan appears to be a good example of framing.

climate as a global threat or as a threat to the jurisdiction. It is plausible that a global threat might be recognized but also seen as having little or no consequence on a particular jurisdiction.

The consequences of the adoption of the frame "climate change as an environmental threat" for selected policy instruments are numerous, according to Rabe (2004). Sub-federal jurisdictions, in the context of the United States, described as under the influence of this framing, adopt 'prime-time strategies' such as CO^2 and GHG regulatory standards, mandatory CO^2 reporting, state-wide GHG reduction commitments, industry reduction covenants, social benefits charges for energy, and energy efficiency (Rabe, 2004: 30). In other words, the most coercive instruments will be used.

Also, it can be argued that the policies proposed by the jurisdictions where this framing is present will tend to focus more on adaptation to climate change than mitigation of GHG emissions, although this last point is not mentioned by Rabe (2004). It is also likely that policy-makers who see their jurisdiction as particularly vulnerable to climate change will enact stringent mitigation policies in an effort to lead by example and encourage other jurisdictions to act.

Reviewing climate action plans of Canadian provinces, the Maritime Provinces appear to be the most concerned by the impacts of climate change on their jurisdiction. Their action plans contain numerous examples of the framing of 'climate change as an environmental threat' that appears to be dominant, in the five climate change that they have adopted (two, in the case of Prince Edward Island).

Referring to the 2007 report of the United Nations Intergovernmental Panel on Climate Change (IPCC), the government of Nova Scotia contends that: "[we] can expect warmer average temperatures, rising sea levels, and more-frequent extreme storms. Nova Scotia is particularly susceptible to these changes because most of our population lives along the coastline, and much of our infrastructure is located in vulnerable areas." (Government of Nova Scotia, 2007: 1)

The government of Nova Scotia also argues that the location of the province is "[…] at the northern end of the Atlantic hurricane track, where more storms similar to Hurricane Juan could hit us as the planet warms […]" and that "[with] 7600 km of coastline, [Nova Scotia is] exceptionally vulnerable to rising sea levels caused by climate change." (Government of Nova Scotia, 2007: 3).

Similarly, in its 2008 climate change action plan, the government of Prince Edward Island (PEI) observes that: "[…] as an Island with a highly erodible sandstone bedrock, an indented sandy shoreline with many estuaries and marshes, and the ongoing submergence of its coast, Prince Edward Island has been identified as one of the areas most vulnerable to sea level rise in Canada." (Government of Prince Edward Island, 2008: 6).

According to the Government of PEI (2008: 7), global warming will impact the island's natural environment, islanders' health and safety, economic prosperity, and overall quality of life. The framing of climate change as an environmental threat was also dominant in the first climate action plan (2000). The major difference between both plans is the presence of the frame of climate change mitigation as an economic threat in the 2000 plan, which we discuss later.

The New Brunswick (NB) climate action plan presents similar arguments. From the start, it contends that "[climate] change has already had impacts on NB communities and further changes are already unavoidable, even if all nations were to drastically reduce [GHG] emissions immediately." (Government of NB, 2007: 4) Furthermore, it is argued that NB already experienced "significant economic losses due to the impacts of extreme weather events in recent years" (Government of NB, 2007: 8).

New Brunswick's government provides a series of observations and expected future changes, which include: rising sea level and temperature, coastal erosion, decreasing snowfalls, and flooding (Government of NB, 2007: 9). Impacts on water supplies and water quality are also anticipated (idem).

Newfoundland and Labrador (NL) represents an interesting case. First, the climate change plan did mention numerous negative impacts of climate change on the province regarding sea levels, invasive species,

dramatic weather events, human health, and ecosystem health (Government of NL, 2005: ii; 11-15). The impact on the fishing industry is an important concern of the Government of NL. However, it also contends that some of these changes might also have positive impacts, notably for the oil and gas industry (that will benefit from thinner sea ice (Government of NL, 2005: ii). Overall, the portion of the climate change plan describing the impact of climate change is important compared to the rest of the plan and the framing of 'climate change as an environmental threat' can be described as dominant. Second, the framing of 'climate change mitigation as an economic threat' is also present especially when the climate change plan address the impact of mitigation measures on the industry and, in particular, the oil and gas sector.

The frame of climate change as an environmental threat is also dominant in the case of the second Québec climate change plan (Québec published three action plans, in 1995, 2002, and 2006) and the first Manitoba 2002 action plan.

Finally, the framing of environmental threat is also present in the third climate change plan of Québec (2006), the second climate change plan of Manitoba (2007), Saskatchewan (2007), and British Columbia (BC) (2008) but to a lesser extent and could not be qualified as the dominant framing. Consequently, the framing is absent or marginally present only in the cases of Ontario (2007), Québec (1995) and Alberta (2002 and 2008). Overall, provincial governments are preoccupied by the impact of climate change on their jurisdiction and adaptation is mentioned in almost every climate change plan and especially the ones that use environmental threat as the dominant framing of the issue of climate change.

Climate Change as an Economic Opportunity

In the second case of issue framing, climate change is conceived as an opportunity for economic development. According to Rabe (2004: 31), sub-federal governments "[…] may not view climate change as a major environmental challenge but may instead identify promising opportunities for economic gain by enacting policies that reduce greenhouses gases." The principal economic opportunity to seize is perceived in relation with the participation in national, regional, or international carbon markets. Without the presence of economic benefits, those jurisdictions are unlikely to act Rabe (2004: 33).

According to Rabe (2004), the opportunistic strategy of those sub-federal jurisdictions includes: agricultural carbon sequestration, forestry carbon sequestration, and technology transfer agreements. However, in this paper, we concentrate on market-based instruments and more particularly cap-and-trade systems and fiscal disincentives (such as carbon tax). We understand that, in the context of United States, carbon tax is rarely, if ever, implemented (at least under an explicit form). However, this is not the case in Canada and some provinces have recently enacted such measures. Moreover, propositions of cap-and-trade systems, at the regional level, have been developed only recently. Acknowledging those recent developments, we argue that those instruments, along with fiscal incentives, are the most consistent with the frame of climate change as an economic opportunity.

In general, the arguments that underline the frame of 'climate change as an economic opportunity' are that a future where carbon emissions have to be drastically reduced or sequestrated open interesting opportunities for jurisdictions which have the capacity to produce zero or low-carbon energy, develop new technologies, and/or capture vast amounts of carbon. The possibility of obtaining carbon offsets or early actions recognition and credits in the framework of a cap-and-trade system or to become the leader of new industries is attractive to many policy-makers. They argue that climate change represents new opportunities of economic development for their jurisdiction, enhancing their capacity to attract new investments.

Reviewing climate change plans of Canadian provinces, the framing of the issue of climate change as an economic opportunity is very clear in the case of the most recent plan presented by the Government of BC. The plan starts contending that:

"[a] study by the University of California Berkeley estimated the state could gain as many as 89,000 new jobs and realizes an annual economic benefit of up to $74 billion by pursuing its climate action goals. We can

expect to see similar benefits here in B.C., as people seek efficiencies to help reduce costs, and businesses emerge to capture new opportunities in fields such as clean energy and energy-efficient technology." (Government of British Columbia, 2008: ii).

The BC government contends that one of the main goal of the plan is to position the province favourably in the clean energy technologies market that is expected to be worth 1 trillion dollars by 2030 (Government of British Columbia, 2008: 4). Taking action on climate change is also believed to provide important competitive advantage (Government of British Columbia, 2008: 3).

However, insisting on the economic opportunity of acting on climate change did not prevent the BC government to acknowledge the significant threat posed by climate change. They are presented at two occasions. First, in a two-page section entitled 'the challenge' it is mentioned that "British Columbia is one of the places feeling the greatest effects from global warming." (Government of British Columbia, 2008: 6-9). However, only a brief section presents the impact of climate change on the province (water shortages, land loss on coastal communities, challenge to critical infrastructures, spreading of the pine beetles, etc.) (idem). This section is immediately followed by another one entitled 'the opportunity,' which insists that the province is a leader in many clean technologies (fuel cell technology, hydropower, and biomass) important in the context of a low carbon future. Also, it is mentioned that British Columbia's forests present important opportunities for carbon storage. It is argued that those technologies can play an important role in "[…] a fast-growing sector of the global economy, worth an estimated $30 billion in 2006" (Government of British Columbia, 2008: 10). Finally, a short section addresses the question of adaptation. In the rest of the plan, the overwhelming concern is jobs and economic opportunities. Also, impacts of climate change on human health are not mentioned, which appears to be an important difference with Maritime provinces.

The second plan presented by British Columbia in 2004 was brief (9 pages) and provides only the actions, without much discussion of the issue of climate change. Overall, most of the actions address the question of energy production (expanding renewable energy), new infrastructures (transport and building), and carbon sinks. Only a minority of actions (13 on 40) address the impact of climate change (pine beetle, extreme weather, and flood). In both the 2004 and 2008 plans, the framing of climate change as an economic opportunity appears to be dominant.

Similarly in the case of Manitoba's first (2002) and second (2008) action plans, the framing of economic opportunity is also present, alongside the framing of environmental threat. However, if the framing of economic opportunity might be described as dominant in the second plan; it was not the case in the first one, where the framing of climate change as an environmental threat prevailed. In the case of Manitoba's 2008 plan, an entire section is devoted to business opportunities offered by climate change. It contends that "Manitoba business can […] make and save money by implementing climate friendly practices and work toward a green economy development." (Government of Manitoba, 2008: 41)

In the case of Québec, an important evolution might be observed between its three climate change plans. In the 1995 climate action plan, the Québec government appears to be concerned by the impact of coercive instruments on the competitiveness of Québec industries and presents climate change as having little impact (responsible only for what is described as a "light warming") (Québec, 1995). Insisting on the relatively good performance of Québec in term of GHG emissions (because of its reliance on hydroelectricity), few concrete measures are included; only a call for voluntarism and voluntary partnerships with the industrial sector. In Québec second climate change plan (the 2000-2002 plan), the government still shows an understanding of coercive climate change policy as an economic threat. It is argued that " […] il faut éviter de placer les entreprises face à des coûts supérieurs à ceux de leurs principaux concurrents [nord-américains]." (Gouvernement du Québec, 2000: 21).

However, impacts of climate change on Québec occupy now an important place and constitute the dominant framing. In the 2000-2002 plan, the approach of Québec is still very much oriented toward voluntarism, with the ÉcoGESte program—a voluntary registry of actions made by industries and

institutions—and voluntary reduction agreements with the aluminum industry, even if some experimentation of market-based instruments are included.

A decisive turn is taken in the Québec 2006-2012 plan. The segment devoted to the discussion of the impacts of climate change appears to be scaled down and the framing of climate change as an economic opportunity occupies a significant place. The framing of economic threat disappears. Contrarily, to the view expressed in previous plan, the 2006-2012 Québec plan contends that climate change provides opportunities to improve the competitiveness of the Québec economy. In that perspective, the central purpose of the strategy is "[de] renverser la tendance à la hausse dans [les] secteurs [du transport et des bâtiments] en entreprenant des actions qui permettront à l'ensemble de l'économie québécoise d'améliorer sa compétitivité et de diminuer sa dépendance aux énergies fossiles." (Québec, 2006: 14). Moreover, a section of the plan is now devoted to market-based instruments. Also, a 'redevance annuelle au Fonds vert' (annual duty payable to the Green Fund, which is often described as a carbon tax with the purpose of financing the actions of the plan) is proposed along with the stated intention of the Québec government to prepare Québec business for the inclusion of the province in a carbon trading system. Such a system is said to have the potential to "générer des occasions d'affaires pour certains organismes et entreprises québécois qui sont actifs dans les secteurs de la valorisation des biogaz, de la biomasse agricole, forestière et municipale, de la séquestration de CO^2, de l'énergie renouvelable et de l'efficacité énergétique." (Gouvernement du Québec, 2006: 28-29). It said to be "dans l'intérêt du Québec de préparer ses entreprises à ces marchés potentiels et d'encourager la réalisation de projets de réduction d'émissions de GES." (idem).

Finally, in the case of Ontario, which adopted only recently a first plan on climate change, the framing of economic opportunity is clearly dominant. The only mention of consequences of climate change on Ontario is a general contention that "climate change will impact on public and private infrastructure, the natural environment, people and other species" (Government of Ontario, 2008: 34). The province is also particularly concerned by Ontario's polar bears (Government of Ontario, 2008: 35). However, from the start, after a brief acknowledgment of the issue of climate change, the action plan contends that "this environmental crisis is also an economic opportunity. As a province, with a strong manufacturing sector, plenty of natural resources, and a smart, educated, skilled workforce, there are opportunities for Ontario." (Ontario, 2008: 3)

To be sure, it is common in the jurisdictions which frame climate change as an economic opportunity that environmental consequences of climate change are included in their action plan. It is the case in BC, Québec, and Manitoba. However, the fact that they insist on the opportunities that a low carbon economy represent for them distinguish them from jurisdictions which frame climate change only as an environmental threat.

Provinces such as Saskatchewan (2007) and Alberta (2002 and 2008) represent interesting cases. In the case of Alberta, in both plans the province frames climate change policy as an economic threat. However, Alberta also contends at several occasions that some opportunities are offered by the issue, mainly to develop carbon management and storage technologies and improve the efficiency of Alberta industries. In its first and only climate action plan, Saskatchewan (2007) also mentions those arguments. However, if it is clear that the dominant framing in the case of Alberta climate change plans is economic threat; this last frame is both more subtle and less present in the case of Saskatchewan's plan, where the economic opportunities prevailed. However, in both cases the important difference with other provinces is that Alberta and Saskatchewan do not mention the establishment of a regional, national, or international carbon market as offering important economic opportunities. This is not surprising, given that it is likely that they will be buyers in such market, having the higher level of GHG emissions per capita in Canada (and Alberta being the first province in terms of total GHG emissions).

Climate Change Mitigation as an Economic Threat

In the third case, sub-federal governments are alarmed by the possibilities that the implementation of coercive climate change policy might have an impact on the growth of their economy and their prosperity; no matter if they believe that climate change is a serious long-term threat or not. According to Rabe (2004: 32),

"in these cases, the anticipation of negative economic impacts from any efforts to reduce greenhouse gases clearly outweigh any potential benefit that a state might derive."

American states that have such framing of the issue of climate change have adopted hostile strategies—including bans on measures to reduce GHG and anti-Kyoto resolutions—or indifferent strategies—including disengagement from interstate discussions and failure to apply for federal funds (idem). In Canada, Alberta and Saskatchewan are instances where serious action on climate change might have significant short-term (even long-term) impacts on their economy. Both provinces rely heavily on fossil fuel for economic growth and use coal-fired power stations to generate their electricity. In the case of Newfoundland and Labrador, the threat is posed slightly differently since the province generate large amount of hydroelectricity. However, the Government of NL relies on the oil and gas industry to provide economic development opportunities.

Not surprisingly, the framing of mitigation as an economic threat appears to be dominant in the cases of Alberta 2002 and 2008 climate change action plans. The Government of Alberta 2002 plan contends that "[…] environmental progress cannot be achieved in isolation of other policy objectives, including the need to maintain economic prosperity" (Government of Alberta 2002: 7) and that "[…] any actions we develop must be compatible with our largest trading partner—the United States—to ensure we maintain a competitive economic advantage." (Government of Alberta 2002: 8). Moreover, the province cites the example of the United States which has not adopted an absolute emission reduction target but instead emissions intensity objectives. The province affirms that "Canada's approach must reflect the trading relationship we have with the United States" and Alberta adopts similar GHG intensity emission targets (Government of Alberta 2002: 11). According to the Alberta government:

> "[absolute] emission reduction targets simply force a jurisdiction to bear the costs of emission reductions while displacing investment, jobs and emissions to nations without [GHG] emission reduction targets. Alberta cannot control the global demand for goods and services (especially fossil fuel) but through emissions intensity improvements, we can ensure that our commodities and services reflect best-in-class performance and result in fewer emissions than similar commodities and services produced elsewhere." (Government of Alberta 2002: 12).

The Alberta 2008 plan continues to affirm the reliance on fossil energy, in that province, to foster economic growth (Government of Alberta, 2008: 13). It contends that emissions intensity targets "[…] reflects the realities of Alberta's strong energy-based economy and is an important step in managing and reducing emissions while, at the same time, not compromising the viability and strength of our economy." (Government of Alberta Alberta, 2008: 23). Examining in more detail the actions proposed by the Alberta government to achieve its intensity-based goals, and its projected emissions, it appears evident that: 1) no real reduction will occur before 2020, at best; and, 2) the strategy relies mostly on carbon capture and storage technologies, which account for 139 Mt of the 200 Mt reductions anticipated by the Government of Alberta from 2010 to 2050 (Government of Alberta, 2008: 20).

In the case of Saskatchewan (2007: 2-3, 6), it is recognized by its Government that the province "is a powerhouse," which produces a large amount of fossil energy that has contributed significantly to its economic growth and its rising GHG emissions and that reducing those emissions will be hard. However, the frame of economic opportunity appears to prevail.

In the case of the NL climate action plan, adopted in 2005, the framing of economic threat is also important but did not dominate that of climate change as an environmental threat. The Government of NL (2005: 21) contends that "[in] implementing our *Action Plan*, we must balance the need to reduce greenhouse gas emissions with the need to continue to grow our economy and ensure the competitiveness of our industry […]."

The framing is particularly obvious when the impact on the industry and in particular the oil and gas sector is discussed. It is argued that "the Province must […] develop a plan that treats our other industries, such as oil and gas, fairly and recognizes the contribution these industries make to the provincial economy." (Government of NL, 2005: 21) It is recognized that these industries (oil and gas), "[…] are among the major contributors to GHG emissions in this Province, but are also major contributors to our economic

sustainability." Finally, it is argued that "[local] industries are export-oriented and therefore compete on a world market. This means that the capability of local industries to make large investments to reduce their GHG emissions may be limited. Some industries have indicated that they are already committed to investments on check if says in other environmental issues and will need a clear picture of the priority areas."

In the industrial sector the Government of NL (2005: 21) contends that the balance between economic growth and reducing GHG might be achieved "[…] by first promoting voluntary, 'no-regrets' measures that would pay for themselves or achieve other policy objectives not specifically related to climate change."

In the first action plan the Government of PEI (2000: 10) argues that "[…] because of the heavy reliance of fossil fuels when the PEI government of the day contended "[because of heavy reliance on fossil fuels that are cited as the main precursors to [GHG], Prince Edward Island may be disadvantaged by economic instruments, such as carbon taxes, that penalize their use." However, this remains a minor theme in comparison with the framing of climate change as an environmental threat.

Finally, it should be said that Canadian provinces, even the most reluctant such as NL, Alberta, and Saskatchewan are nowhere near the American states that Rabe (2004) qualifies as hostile and who frame climate change mitigation as an economic threat. For instance, no legislation has been passed in Canada to ban action on climate change.

■ IMPACT OF FRAMING ON POLICY INSTRUMENTS CHOICE

Over-all, our observations partially support the hypotheses stated at the beginning of this paper. Climate change policy in Canadian provinces appears to be complex and composed of a large array of policy instruments. All provinces appear to have selected public spending in different fields and instances of regulatory norms (at least on building and/or appliances efficiency). They have been often adopted some kind of voluntary measures (under the form of public awareness campaigns, GHG reduction voluntary agreements or inventories of measures taken by their industries). However, only a few of them have selected a carbon tax or/and cap-and-trade system (only BC 2008; Manitoba 2008; Québec 2000 and 2006, and Ontario 2007). All these provinces have in common a dominant frame of climate change as an economic opportunity, in conformity with our second hypothesis. Moreover, provinces proposing the most thorough action plan on climate change (BC 2008, Manitoba 2008, and Québec 2006), using a large number of policy instruments of all types, frame climate change both as an economic opportunity and as an environmental threat, even if this last framing is less pervasive.

However, in the case of our first hypothesis, it appears that provinces that frame climate change primarily as an environmental threat do not always use a coercive approach. It is the case of Nova Scotia 2009 (which used regulatory norms and set real GHG reduction objectives and renewable energy standards) but not the case of PEI 2001, PEI 2008, NB 2007, NL 2005, and Québec 2000. Moreover, when the framing of climate change as an economic threat is also present (but not dominant), like in the cases of PEI 2001, NL 2005, and Québec 2000, the instruments selected are particularly weak, relying only on public spending and voluntarism. However, in all cases, adaptation is a primary concern for those jurisdictions and an important number of policy instruments are selected to that aim.

The context of the Maritimes provinces is arguably difficult for strong mitigation action given the comparatively weak level of economic development. Also, in the case of Nova Scotia, the fact that the province is one of the important users of coal to generate electricity (along with Alberta, Saskatchewan, and Ontario) might be an additional obstacle. Consequently, despite a framing of the issue of climate change as an environmental threat dominant in all climate change plans of this region, it is not surprising to observe that instances of coercive instruments are rare.

Finally, in the case of the third hypothesis, it appears that the Government of Québec in its 1995 plan, where the dominant framing is climate change mitigation as an economic threat, did in fact select voluntarism to address the issue of climate change.

Consistent with our hypothesis, the first Alberta climate change plan (2002) relies mostly on voluntary norms and public spending. However, in its second action plan (2008) intensity-based norms are proposed, despite only a marginal presence of the frame of climate change as environmental threat and the continuing dominance of the frame of climate change mitigation as an economic threat. This instrument is a surprising policy innovation. In doing so, Alberta appears to believe it can use coercive instruments for addressing climate change without preventing growth of its intensive carbon economy.

However, it is clear that those intensity targets will not curb Alberta emissions, at least not before a long time, and consequently do not meaningfully address the problem of rising GHG emissions in the province, which now represents a third of total Canada GHG emissions. This fact is acknowledged by the Government of Alberta (2008), since it anticipates no real reduction before 2020.

This innovation has yet to find an explanation. Why it is important for Alberta to enact such regulation despite not conceiving climate change as an important environmental threat? Our hypothesis, explored elsewhere (see Houle, 2009) is that occupying the legislative space before the federal government was an important concern, giving the timing of the announcement of the first legislative action, only weeks before the Kyoto Protocol ratification by the federal government. A legislative approach was identified as a way to secure provincial jurisdiction over climate change in the case of legislative or regulatory action on climate change from the Federal government. Such a move appears to be important for the Alberta government in order to prevent the implementation of a coercive instrument by the federal government that, according to Albertan officials, would have hurt the economy of their province (idem). Finally, the adoption of climate change legislation in Alberta was also instrumental in responding to the numerous critiques, both at the national and international level, concerning the development of the tar sands industry and represent and effort to 'green wash' the industry. In doing so, the Alberta government respond to the threat presented by an eventual backlash again the industry in United States its most important market.

■ CONCLUSION

It should be clear that our hypotheses on the impact of framing on selected instruments in Canadian provinces are, at best, only partially confirmed, as show in table A2. Overall, of the sixteen climate change plans adopted by the ten provinces, our hypotheses predicted the instruments selected in four of those plans, partially predicted the instruments selected in most of them (9 times over 16), and make false prediction in two cases. Québec adopted few regulatory norms in its 2000-2002 plan (the most significant being norms on methane capture in landfills, on ozone-depletion substances, and mandatory inspection of vehicles, the last being still not implemented several years later). The second is the case of intensity-based regulation in Alberta, previously "two page section" discussed. The principal problem being the fact that regulation related to GHG emissions is more common than we first thought, especially in the case of provinces which frame climate change as an economic opportunity. In some cases, such as a regulation for biofuels or renewable energy, they can be conceived as instruments to help some industries to grow and create markets for their products. Policy instruments selected rely often on more than one type, and thereare a lot of instances of policy mixes where the development of new industry, such as biofuels for instance, is pursued by financing research in that domain, information campaigns addressed to the general public on alternative fuels, and creation of markets by adopting norms to ensure that gasoline content a percentage of ethanol.

Another possibility is that framing is more complex and that we should address more than only the dominant framing. In that case, the presence of regulation in provinces that frame climate change as an economic opportunity might be explain by the co-occurrence of the framing of environmental threat (even if

it does not prevail). Also, the use of more advanced content analysis might allow us to increase the precision of our assessment of the framing present and their importance.

If the utilisation of the concept of framing in cases of provincial climate changes policy provides some useful insights, it is clear that a more sophisticated model is needed. Such a model should pay attention in particular to the influence of policy networks (in and outside the boundaries of the province), of actions (or lack of action) of the federal government, and diffusion of initiatives between level of governments and sub-federal governments in North America. It might be the case that issue framing is an epiphenomenon and that those variables—such as the structure of policy networks—might provide both an explanation of policy instruments choice and framing. In that case, framing will simply co-occur with particular type of networks, for instance. In provinces where the policy network is dominated by representatives of the oil industry, climate change will be perceived as an economic threat while networks where renewable energy entrepreneurs are present will conclude that it offer tremendous opportunities.

Also, reviewing provincial climate change plans, we noted numerous examples of diffusion of ideas or instruments, many of them involving the state of California, often seen as a leader by Canadian policy-makers in BC, Ontario, Québec, and Manitoba. Public opinion might also be an important driver of policy instruments choice in Canadian provinces. However, most surveys on that topic do not offer representative sampling for all Canadian provinces. The research presented in this article does not allow us to assess the validity of those alternative hypotheses but they are clearly interesting avenues for future research on the topic.

Finally, it should be noted that our study was interested mostly in instrument selection and did not discuss either the implementation of policy instruments and their efficiency or effectiveness (policy instruments encouraging biofuels production are a good example of an approach that have been called into question in recent years). Cleary, such studies are both necessary and lacking in the case of provincial climate change policy.

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ANNEX.

TABLE A1: CLIMATE CHANGE PLAN AND LEGISLATION AMONG CANADIAN PROVINCES AND TERRITORIES (MARSHALL, 2008; WINFIELD, 2008)

PROVINCES	CLIMATE CHANGE PLAN	CLIMATE CHANGE LEGISLATION
Alberta	First action plan: 2002 Second action plan: 2008	*Climate Change and Emissions Management Act* (adoption: 2003, implementation: 2007)
British Columbia	First action plan: 1995 Second action plan: 2004 Third action plan: June 2008	Greenhouse Gas Reduction Targets Act, SBC 2007, c 42; Carbon Tax Act, SBC 2008, c 40; Greenhouse Gas Reduction (Cap and Trade) Act, SBC 2008, c 32
Prince Edward Island	First action plan: 2001 Second action plan: 2008	
Manitoba	First action plan: 2002 Second action plan: April 2008	*2008 Climate Change and Emissions Reductions Act, CCSM c C135*
New Brunswick	First action plan: June 2007	
Nova Scotia	First action plan: 2009	GHG targets under the Environmental Goals and Sustainable Prosperity Act, SNS 2007, c 7
Ontario	First action plan: October 2007	
Québec	First action plan: 1995 Second action plan: 2000 Third action plan: 2006	2009 Environment Quality Act (Cap-and-trade)
Saskatchewan	First action plan: June 2007	
Newfoundland and Labrador	First action plan: 2005	

TABLE A2. FRAMING AND INSTRUMENTS SELECTED IN CANADIAN PROVINCES CLIMATE CHANGE PLAN

DOMINANT FRAMING: ECOLOGICAL THREAT			
PROVINCES	**OTHER FRAMING(S)**	**INSTRUMENT CHOICE (THE MOST IMPORTANT)**	**RESULT**
British Columbia (1995)	None	Market-based instrument (financial incentive only), voluntarism, and regulation.	Partially as predicted
Prince Edward Island (2001)	Economical threat	Market-based instrument and voluntarism	Not as predicted
Prince Edward Island (2008)	None	Regulation	As predicted
New Brunswick (2007)	None	Regulation	As predicted
Nova Scotia (2009)	None	Market-based (fiscal incentives only) and regulation	Partially as predicted
Manitoba (2002)	Economic opportunity	Regulation and market-based instruments (only fiscal incentives)	Partially as predicted
Québec (2000)	Economic threat and Economic opportunity	Market-based instruments and voluntarism	Not as predicted
Newfoundland and Labrador (2005)	Economical threat	Voluntarism and market-based (fiscal incentives only)	Not as predicted

DOMINANT FRAMING: ECONOMIC OPPORTUNITY			
PROVINCES	**OTHER FRAMING(S)**	**INSTRUMENT CHOICE (THE MOST IMPORTANT)**	**OUTCOME**
British Columbia (2004)	Environmental threat	Market-based instruments (fiscal incentives only) and voluntarism	Partially as predicted
British Columbia (2008)	Environmental threat	Market-based instruments (including fiscal disincentives and cap-and-trade) and regulation	Partially as predicted
Manitoba (2008)	Environmental threat	Market-based instruments (including cap-and-trade and fiscal disincentive) and regulation	Partially as predicted
Ontario (2007)	None	Regulation and market-based instruments(including cap-and-trade)	Partially as predicted
Québec (2006)	Environmental threat	Market-based instruments (including fiscal disincentives and cap-and-trade) and voluntarism	Partially as predicted
Saskatchewan (2007)	Environmental threat and economic threat	Market-based instruments (only financial incentives) and voluntarism	Partially as predicted

DOMINANT FRAMING: ECONOMIC THREAT			
PROVINCES	**OTHER FRAMING(S)**	**INSTRUMENT CHOICE (THE MOST IMPORTANT)**	**OUTCOME**
Alberta (2002)	Economic opportunity	Voluntarism	As predicted
Alberta (2008)	Economic opportunity	Regulation (intensity-based)	Not as predicted
Québec (1995)	None	Voluntarism	As predicted