Comparing Domestic Constraints on Climate Policy in North America

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The goal of this chapter is to explain the similarities and differences on climate policies in Canada, Mexico and the United States and by so doing explaining why, in spite of existing opportunities for building a North American regime on climate change, this has not taken place.

The paper is divided in four sections. Sections one and two explain changes in the preferences of political elites in the United States, Canada and Mexico on global climate change and the potential for cooperation on climate change and energy security given existing levels of energy interdependence in North America, even in spite of significant power asymmetries, enabled policy convergence between the three North American countries on climate change and energy security. Section three explains that a coordinated regional policy framework is inhibited by the existence significant institutional constraints particularly, although not exclusively, in the United States as well as by the absence of a strong demand on the part of the private sector to introduce clear regional rules on climate change.

Policy convergence on Climate Change

The United States: From Laggard to Leader to Laggard?

As president, George W Bush abandoned a campaign promise to curb carbon emissions and made no attempts to ratify the Kyoto Protocol in the US Congress. The Bush administration considered the protocol "fatally flawed" due to its failure to include obligations by developing countries, especially China and India, to reduce greenhouse gas emissions that posed an undue economic hardship for the United States and thus justified US withdrawal. The Bush administration's climate change initiative centered on national emissions intensity (emissions produced per unit of GDP) levels, set a 18 per cent reduction, and emphasized voluntary emission reductions (as opposed to mandatory policies) that could be reached through industry agreements which did not

require congressional approval, tax incentives for clean energy technologies and cogeneration, research in hybrid vehicles and hydrogen-based cells, etc. Most significant in terms of the damage to the emergence of a climate change regime was the Bush administration questioning of the science of climate change, particularly the claim that anthropogenic activity caused the rise in temperature, and its support and promotion of use of fossil fuels and the sector's deregulation.[2] The administration's systematic effort to "manipulate climate science and mislead policymakers and the public about the dangers of global warming"[3] seems to have worked as the public "remained confused about the reality of climate change and gave it less attention than otherwise might have been the case[4].

In 2007, and in light of the IPCC's unequivocal evidence of climate change and the call for urgent action, a change in the Bush historical stand took place. It adopted the Higher Corporate Average Fuel Standards (CAFE) and renewable fuel standards, and established the Major Economies Forum, which includes those countries that are responsible for 80 percent of greenhouse gas emissions and aims at creating a post-Kyoto framework to cut such emissions. A similar effort had been made in 2005 with the Asia-Pacific Partnership on Clean Development and Climate, which was non-binding international framework and did not require congressional approval.[5] With the goal of engaging developing countries in mitigation efforts, the United States joined other three voluntary partnerships that largely focused on technology development, i.e. the Carbon Sequestration Leadership Forum and the International Partnership for the Hydrogen Economy, both established in 2003, and the Methane to Markets Partnership, established in 2004. The initiatives thus addressed a key concern in U.S. climate policies since the mid-1990s.[6]

Most importantly, by 2007, the US administration was ready to consider long term actions under the auspices of the United Nations Framework Convention on Climate Change and to support the 2007 G8 summit declaration and the Bali Action Plan, although the US goals and commitments continued to be voluntary and aspirational.[7] The Bush administration announced the stop of US emissions growth by 2025 as a goal and its intention to sign an internationally binding agreement if the other major economies did so too. The United States continued to

insist, however, that an effective framework required the participation of "all major economies, developed and developing alike"[8].

President Obama campaigned on ending the US dependence on foreign oil, promoting alternative energy and green jobs and addressing climate change through a mitigation target to stabilize greenhouse gas emissions at their 1990 levels by 2020 and 80 per cent reduction by 2050 and a cap and trade system which could help reduce mitigation costs[9]. Few days after taking office, Obama sent two policy signals that showed his determination to lead in the climate change file. The first was the signing of a memorandum requiring increased fuel efficiency for 2011-model passenger vehicles; the second was a memorandum asking the Environmental Protection Agency to reconsider California's petition for a federal waiver that would allow the state and other states to impose stricter regulations to limit gas emissions from motor vehicles than those set by the federal government and which had been blocked for four years by the Bush administration. With the American Recovery and Reinvestment Act, the Obama administration devoted about 10 percent of resources to new energy, energy efficiency, the introduction of smart grids and energy-related jobs. The Obama budget of 2009 also proposed a 10-year revenue of $645 billion dollars that would come from auctioning permits from oil, electric power and heavy industries that are responsible for the majority of CO2 emissions. Most of that revenue would be used to provide tax credits to workers, offsets to higher energy costs and clean-up costs for small businesses. The EPA received the largest budget in its history, amounting $10.5 billion dollars[10].

With the instruction that the EPA followed up on the U.S. Supreme Court ruling (Massachusetts vs EPA) from April 2007 in which the court decided that carbon dioxide was a pollutant under the Clean Air Act, the Obama administration inaugurated a period of active regulation regarding carbon emissions. Section 202 of the Clean Air Act requires an "endangerment finding", which documents that the emissions in question contribute to air pollution ''which may reasonably be anticipated to endanger public health or welfare''. The EPA, which had finalized in December 2009 the mandatory GHG reporting rule so as to require GHG emissions monitoring from selected sources[11], demonstrated able to support the view that GHG emissions from motor vehicles

endanger public health and welfare and thus should be subject to regulation under the CAA. In April, this finding was confirmed by the Supreme Court in a vote 5 to 4, authorizing the EPA to regulate CO2 emissions. In response, a negotiation between government, states and the automotive industry resulted in the first-ever GHG standards[12] for model 2012- 2016 vehicles in April. The EPA and the National Highway Traffic Safety Administration (NHTSA) also issued new Corporate Average Fuel Economy (CAFÉ) standards requiring a performance of 35.5 miles per gallon by 2016. Additionally, in September, EPA and NHTSA proposed a new labeling system that would include information on fuel efficiency and GHG emissions of new passenger vehicles, while both the White House and the EPA have announced the crafting of GHG regulations for heavy-duty engines and vehicles.[13]

The endangerment finding's repercussions went well beyond the transportation sector; once greenhouse gases were identified as pollutants, a new push for using the CCA to regulate emissions from stationary sources began. Being considered pollutants, GHG emitted by new and modified facilities would be now required to obtain these permits as well. In May, the EPA finalized the "Tailoring Rule", which set new emission thresholds for the application of the Prevention of Significant Deterioration program and which is instrumental in the phasing-in of permits for stationary GHG sources.[14] EPA states that this regulation will cover 70 per cent of current GHG stationary sources, thus affecting manufacture facilities, oil refineries and large power plants whose emissions clearly exceed the GHG emissions thresholds set by the EPA.

Although the US Congress did not echoed the White House's leadership on climate change and blocked Obama from fulfilling his campaign promise to lead on the global climate negotiations, the policy debate in the United States in the early years of the Obama administration ignited policy changes in Canada and Mexico on climate change and clean energy. This policy convergence is reflected in the bilateral, trilateral and multilateral interactions of the leadership of the three countries (see boxes 1 and 2 in the Appendix), and it represented a significant movement from the divergence that existed in the positions that the three countries had maintained on climate change for years: while the United States unilaterally withdrew from the Kyoto Protocol, Canada

accepted its Annex I obligations to cut greenhouse gas emissions under such protocol. Being a non-Annex I country, Mexico had no commitments to reduce GHG emissions.

Canada

In contrast with the United States, Canada signed and ratified the Kyoto Protocol, and assumed commitments to reduce greenhouse gas emissions to 6 per cent below the 1990 levels by 2012. But *de facto* and given its failure to comply with its Kyoto commitments, Canada seems to have followed US climate policies in the last two decades. Today, Canada's greenhouse gas emissions are much higher than those registered in 1990,[15] with official data indicating a carbon-emissions increase of 27 per cent between 1990 and 2004. In recent years, Canada's national policy on climate change has "disintegrated into a shamble of uncoordinated and wildly different objectives, policy instruments and programs."[16] In 2008, the Liberal Party's leader Stéphane Dion failed to get elected as Prime Minister, after having campaigned with the promise of introducing a carbon tax showed the relatively weak support for climate change action and the weight of economic recession which made such measures highly unpopular.

The conservative minority government of Stephen Harper, representing the Western provinces' interests, particularly those of Alberta, blatantly abandoned Canada's commitment under the Kyoto Protocol. The new greenhouse gas emissions reductions set by 2020 were 20 percent relative to 2006, compared with 6 per cent below 1990 levels—which represented 3 per cent below 1990 levels.[17] In April 2007, the *Turning the Corner: An Action Plan to Reduce Greenhouse Gases and Air Pollution* introduced an industry requirement to reduce emissions intensity by 18 per cent by 2010.[18] The action plan included, besides a regulatory framework for industrial emissions of greenhouse gases and air pollutants, a mandatory fuel-efficiency standard for automobiles, beginning with the 2011 model year, as well as action to reduce emissions from the rail, marine, and aviation sectors, and from on-road and off-road vehicles and engines; the implementation of new energy performance standards to strengthen existing energy-efficiency standards for a number of products that consume electricity, including light bulbs, in order to reduce emissions from the use of consumer and commercial products.

Ottawa has already announced that its climate policy will follow that of the United States.[19] The day after the US election, the Harper government announced that "it would propose to the Obama administration a bilateral climate-change agreement, in order to harmonize policy in the two countries and guarantee that the US would not shut out imports of dirty oil from Alberta tar sands."[20] It then decided to mirror the US targets expressed in the Copenhagen Accord shows and set its target at 17 per cent below 2005 emission levels or 3 per cent above 1990 levels.[21] The Harper government has also placed a strong emphasis on technology development, as a means to achieve its greenhouse gas emissions reduction goal as inscribed in the Copenhagen Accord. It committed to invest $795 million over five years through the Clean Energy Fund for research and development of green technologies; $4.2 billion through ecoENERGY Initiatives which encourage Canadians to invest in energy efficient products and services; and $1 billion over five years for the Green Infrastructure Fund which invests in green and sustainable infrastructure.[22]

Not surprisingly, most bilateral US-Canada agreements or programs have emphasized research in technology and market-based approaches. The Joint Agreement to Fight Climate Change of 2002, the Smartway Transport Partnership and ecoENERGY for Fleets which were established in 2005 and the 2008 cross-border agreement in which Environment Canada and the National Oceanic and Atmospheric Administration (NOAA) pledged research collaboration in order to identify climate change impacts for the region are good examples. The U.S.-Canada Clean Energy Dialogue was established in February 2009, becoming the most important forum for bilateral action concerning research and development on carbon capture and storage, smart grid technology and renewable energy sources.

Mexico

With the presidency of Felipe Calderon, Mexico has assumed a global leadership on climate change. Not only did Mexico host, very successfully, the last round of global climate negotiations which took place in Cancun,[23] but it became the first developing country to announce, in 2008 at the Poznan conference, targets to reduce carbon emissions- by 50 per cent from 2002 levels by 2050. The 2009 special national program on climate change, the *Programa Especial de Cambio Climático* (PECC), introduced commitments to reduce carbon

emissions across all sectors by 51 million tons at the end 2012 and 30 per cent below business-as-usual levels by 2020.[24] These commitments represented a stark departure from the traditional developing country interpretation of the principle of common but differentiated responsibilities, by which developing countries have historically rejected obligatory mitigation targets, an issue that has been a source of contention between developed and developing countries. China and India, for example, have committed to reduce the intensity of future carbon emissions, an approach that would allow for an increase of their absolute emissions. Mexico's goals are aspirational as they are dependent upon financial support from international sources and, as such, its climate change

The Mexican government also introduced major pieces of legislation to promote renewable energy, including the Law for the Use of Renewable Energy and Financing the Energy Transition, which set a renewable energy fund, an 8 per cent target for renewable energy generation and rules for the purchase of surplus energy from self-supply and cogeneration; the Law for the Sustainable Use of Energy that introduced a number of programs to increase energy efficiency; and the General Climate Change Law, introduced by Senator Alberto Cardenas which, among other things, contemplates the establishment of a cap-and-trade system that will imply the development of a carbon market, a Green Fund, a carbon tax and targets to reduce all fossil fuels consumption, deforestation, methane emissions from waste, and to increase efficiency at cogeneration plants for Pemex, renewable electricity production as well as the use of carbon capture and storage for all new coal generation plants. As the PECC, the Law's commitments are dependent upon the availability of international financial resources.[25] Many of these actions were driven by the momentum which was built in the run-up to the Cancún global talks on climate change.

Mexico's international climate position under the Calderón government represents a fundamental change from the country's historical limited involvement in the multilateral negotiations. A more active participation in the global negotiations on climate was constrained at least three factors: the country's decision to become member of the OECD countries and thus its exclusion from the G77, the largest bloc representing developing countries in the climate change negotiations; the key importance of oil production in the national economy, with high

levels of energy inefficiency; and its strong economic association with the United States, which, like Canada and by virtue of its dependence on the US for energy exports, limited Mexico's policy options to follow a path different to the one set by its large neighbor.

During the Kyoto Protocol negotiations, Mexico exhibited an overall subsidiary, low profile role, which was at times also ambivalent. Although clearly identifying itself with the Group of 77/China positions, Mexico became a member of the OECD club and, with South Korea, the only OECD country that was not included in Annex 1 of the Kyoto Protocol. By 2000, Mexico joined South Korea and Switzerland in the Environmental Integrity Group which aimed at fostering a multilateral consensus on the rules that would apply to carbon sinks. The withdrawal of the United States from the Kyoto Protocol also undermined Mexico's interest in participating more actively in the global climate change negotiations, as such move represented both the collapse of the potential market size of the Clean Development Mechanism, as the US was expected to be the main purchaser of emissions, and the prospects for a North American emissions trading scheme. Interestingly and in spite of these setbacks, Mexico's foreign policy rhetoric continued to place climate change as a key priority, thus reflecting concerns about the country's high vulnerability to the effects of global warming.

With the United States, Mexico established in 2009 a Bilateral Framework on Clean Energy and Climate Change, which became a mechanism for political and technical cooperation and information exchange, and facilitates common efforts to develop clean energy economies and to cut greenhouse gas emissions, strengthen adaptation capacities, and enhance the reliability of electricity trade at the border. One year later, the two countries created a Binational Expert Group on Low Emissions Development Strategy, an Academic Forum on Clean Energy and Climate Change, and fast-track tariff negotiations on Climate-Friendly Technologies, and committed to modernize the electricity grid and also announced a $400 thousand fund to investment in wind technology for Mexico and training programs to increase energy efficiency as well as EPA's technical advice on GHG emission limits and reductions in the transportation sector. A Cross-Border Electricity Task Force was established to stimulate power generation and trading from renewable sources in the border region.

The three North American countries coincided in several multilateral fora, including the G20, at which they committed, for example, to the phasing-out of fossil fuel subsidies that resulted from the 2009 meeting in Pittsburgh. These countries also joined the Energy and Climate Partnership of the Americas, created during the Fifth Summit of the Americas in April 2009. With the support of several international organizations and development banks, this initiative is set to enhance hemispheric collaboration on energy efficiency, renewable energy sources, fuel efficiency, energy poverty and energy infrastructure.[26] Clearly changes in policy positions in the United States in 2009 and the momentum built around the global climate talks in the run-up to Copenhagen and then Cancún were germane to the flurry of activity at the highest level in North America.

That energy issues were prominent in the bilateral and trilateral high-level dialogues in North America is not surprising given the fundamental linkage that exists between the twin goals of energy security and of reducing carbon emissions for the three North American countries, as the following section shows.

Power Asymmetries: Canada and Mexico as policy takers

Revealing high levels of regional interdependence, trade in energy represents a significant portion of overall trade in North America. However, power asymmetries are still significant. The United States is the third world oil producer and has vast coal resources, with a 29 per cent share of world estimated recoverable coal reserves. U.S. energy consumption is formidable and has made the United States highly dependent on energy imports, even if domestic reserves production of oil, natural gas and coal are also substantial. Today, independence from foreign oil and reduction of environmental impacts of fossil fuels consumption are now seen as compatible goals and top priorities for US decision-makers.

Due to its market-size, the United States tends to dominate energy policies in North America. As tables 4, 5 and 6 in the Appendix show, Canada and Mexico are both dependent on the US market for their oil exports, while both Mexico and the US are importers of natural gas. Mexico is also a net importer of coal, whereas this resource is plentiful in the United States and to a lesser extent in Canada.

With the United States, Canada is one of the largest energy consumers and producers in the world.[27] Canada's consumption of global energy and total emissions of carbon dioxide are high by global standards and

particularly highly disproportionate to the size of its population. Canada's climate policies are shaped by the country's historic dependence on low-cost energy sources to offset the high energy costs of extracting, processing and transporting raw materials and its large trade dependence on the United States. Canada exports a large part of its energy resources to the United States, with the oil and gas industry now being the largest source of Canadian exports to the U.S., after nearly doubling in value over the last five years.[28] Not surprisingly, increasingly Canada has become vulnerable to environmental concerns and policies adopted in its most relevant export market as unconventional fossil fuels, especially oil sands and shale, have gained prominence in its energy supply.[29] As such, Canada needs to be extremely cautious in the adoption of targets and timetables and the need to harmonize its response to that adopted by the United States. Striking a balance between these goals continues to be a challenge.

Mexico's dwindling oil resources are also altering the North American energy security context and fundamentally explain the country's recent leadership in climate change policies. While Canada's oil and petroleum exports to the United States have continued to grow over the years, Mexico's hydrocarbon proven reserves are down to a level of 9 years of production for petroleum and 20 years for natural gas. The International Energy Agency predicts that, in a decade, Mexico will turn into a net importer of energy. In fact, Mexico's exports peaked in 2006 and have continuously fallen due to the depletion of Mexico's largest oil field Cantarell. Mexico is also a net importer of gas, which is increasingly meeting a rapidly growing domestic energy demand. For Mexico then, and even if its carbon emissions are much lower than their two North America partners, as figure… in the appendix shows, addressing climate change is not an incompatible goal with energy security, as the country needs substantial investments to develop alternative and economically accessible energy sources. Moreover, income generated from oil exports fund most of Mexico's social programs and constitute already two-thirds of the Mexican government total revenue. Not surprisingly, as a World Bank study has boldly stated, "Reducing greenhouse gas emissions is critical in Mexico, not only to address climate change but also to facilitate economic development, a key emphasis of the country's climate change agenda." [30]

Their dependence on access to the US market for oil and gas makes both Canada and Mexico also reliant on US energy and climate policies, as it became evident during debates about different US legislative proposals on energy reform. In particular, the American Clean Energy and Security Act (ACES), which was approved by the House of Representatives in June of 2009, and the American Power Act (APA) that failed to follow suit in the Senate. Both proposals sought to establish an economy-wide cap-and-trade system in the United States.

Clearly, some of the measures included in those legislative proposals, particularly trade sanctions, border adjustments and the competitive challenges for industries that are energy intense and trade-exposed (EITE), have raised concerns in both Canada and Mexico over U.S. protectionism—even though those measures may be deterred through the US obligations under NAFTA and the WTO principles.[31] Apparently such provisions mainly target emerging economies' imports such as China's. Mexico's production of goods from EITE industries is regarded as clean enough to meet the standards introduced in both pieces of legislation and, while affecting 10 per cent of Canadian GDP, Canada's EITE are not in manufacturing sectors for which the ACES proposal had identified as targets of such competitive measures.[32] Nonetheless, the political atmosphere suggested a strategic bilateral relationship with the United States could prevent Canadian and Mexican trade flows from being disrupted as a result of U.S. climate legislation. A North American cap-and-trade system remains unlikely, but informal linkage of national systems through the trade of offsets not so hard to envision and could help avoid US potential protectionist measures. [33] Certified emission reductions, particularly those coming from Mexico, could help drive costs down for US companies and provide the necessary funding to make a transition to low carbon economy for the smaller North American partner.

In spite of these factors, recently and in the context of US climate and energy policy uncertainty, there are voices in favor of implementing a parallel, transitional climate policy for Canada that addresses the different energy and emissions mix that exists between Canada and its Southern neighbor.[34] Also, the costs for Canada of adopting similar mitigation targets than those implemented in the United States will probably be higher, given that Canada's industrial power base is relatively newer than that of the U.S., and thus, investment in clean technologies does not necessarily pair with regular infrastructure updating as it does in the United States.[35]

Different energy economies and greenhouse gas emission profiles in the two countries "create different economic and environmental implications for Canada as we pursue a harmonized policy approach. Canada's distinctive emissions profile and energy-economy structure mean that matching our GHG targets with those of the U.S. leads to higher carbon prices here. Alternatively, while matching carbon prices with those in the U.S. would reduce competitiveness concerns, fewer emission reductions would actually occur due to projected higher emissions growth in Canada than in the U.S. As a result, Canada would not meet its stated 2020 target."[36]

According to the UNFCCC, Canada's emissions grew by over 35 per cent between 1990 and 2008, compared with a 15 per cent growth in the United States, meaning that Canada's efforts to reduce its emissions growth will require bigger efforts (and higher carbon prices) than in the United States to achieve the same target relative to 2005.[37] In addition, Canada's energy mix "contains more hydro and is less reliant on coal- and gas-fired generation at the national level than in the United States," meaning that the United States gets bigger reductions by replacing its coal-fired electricity plants with less carbon-intensive alternatives, "while Canada requires a broader range of measures across multiple sectors to reduce emissions."[38] In contrast with the United States, where more than half of electricity is produced from coal,[39] hydro is the source of the bulk of Canada's electricity as can be seen in … Appendix. The competitive challenges in Canada, in seeking to meet its climate targets for 2002, will be emerging from emissions-intensive industrial/resource sectors, particularly the mining and oil and gas extraction sectors, which have growth strongly in the past decade.[40]

Although Mexico's GHG emissions are not high compared to the United States and Canada, and are relatively low measured on per capita basis, projected growth of Mexican GHG emissions on a business and usual scenario is significant. Between 1995 and 2005, in fact, total Mexican emissions increased 34 per cent.[41] For Mexico, the possibility of negotiating a sector-based accord to provide offsets for a thriving carbon market in North America could represent a considerable resource base to strengthen domestic climate change programs, to channel very much needed financing and to promote development in impoverished Mexican forest communities. Like the United States, fossil fuels dominate in the Mexican economy (see … in the Appendix)

and constitute the largest sources of electricity generation, with natural gas having substantially increased in the last decade.[42] While ACES restrictions would probably have ruled out Mexico as a provider of international offsets, APA left more room to explore this possibility, as it allows the use of offsets with developing nations that have appropriate mitigation, reporting and verification guidelines in place. Developing these capabilities in Mexico, particularly on avoided deforestation, becomes of strategic importance particularly to access financial resources that are needed to curtail the growth of GHG emissions in Mexico. Expanded programs for forest management, wildlife management, and efforts to increase the stock of forests can provide needed employment in rural areas and help make Mexican forests net absorbers of CO2 in the coming years. In Mexico one of the most important sources of greenhouse gas emissions continues to be deforestation. The rate of deforestation has fallen steadily over the past decades, but Mexico maintains one of the highest deforestation rates in the Western Hemisphere.[43]

Other provisions, such as those contained in ACES and which would cut foreign oil imports in $650 billion USD through 2030,[44] may potentially impact the US North American energy trade partners. It is common understanding that U.S. call for energy independence mainly targets politically-unstable imports from the Middle East and Venezuela, but protectionist measures against Canada and Mexico from whom the United States imports over a third of its total oil imports--over 20 per cent of its oil from Canada,[45] and over 10 per cent from Mexico—cannot be ruled-out completely. Since 2006, changes in the US climate policies gave way to "green protectionist" voices that portrayed Canadian oil from the tar sands as "dirty" sources of energy. One example was the campaign against the oil sands, instrumented by Forest Ethics, with the support of several companies including Walgreens, The Gap, Timberland, Levi Strauss and Whole Foods, who have switched fuel suppliers and transportation contractors who use oil sands as a source for fuel.[46]

These and other measures, such as the Low Carbon Fuel Standard adopted in California, could have significant impacts on Mexican or Canadian exports of oil to the United States.[47] The implementation of a Renewable Electricity Standard, were it to accept out-of-state renewable power,[48] would be beneficial for both Canadian and Mexican border-states working on hydro, wind and solar power. Nevertheless, a trade dispute about

renewable power definitions in current U.S. legislative proposals cannot be discarded. Definitions could be discriminatory between power-generated by old and new hydro plants and could run against the supply of renewable power by Canadian –particularly Quebec-based – hydro plants.[49]

Electricity trade is not significant throughout all of North America, but it is rather limited to Canada-US exchanges. Given the projected growth in demand for electricity across the Mexico-U.S. border, the adoption of renewable portfolio standards at the state level in the United States could create the impetus for policy harmonization and to advance deployment and cross-border grid interconnections of non-CO2 emitting sources of electric power. These projects are more challenging as they necessitate reconciliation of differing regulations on both sides of the border, although the Canada-U.S. experience might be useful in providing a model for this exchange, as Rowlands' chapter in this book shows. They also require substantial investments in infrastructure development and must be part of a long-term cooperation program. As Etcheverry in this book and Wook argue, Mexico in particular offers a reliable and relatively low-cost supply from its wind energy farms in the north, but the challenge is to develop the transmission lines across the borders and reconcile the state and federal regulatory frameworks on both sides of the border.[50]

Both Canada and Mexico lack the infrastructure to diversify its energy exports, at least in the medium-term and are therefore strongly dependent on the decisions made by their large, common neighbor. In the absence of a U.S. comprehensive policy on climate change, it is likely that Canadian policy will remain a patchwork of provincial initiatives and city-by-city Green Programs, aided by federal spending programs to boost clean coal technologies – namely Carbon Capture and Storage. In Mexico, climate legislation is not as clearly driven by U.S. policy, largely because Mexico is not obligated, under the UNFCCC, to adopt mitigation measures. Nevertheless, in the absence of a US comprehensive policy on climate change, Mexico faces significant institutional and financial barriers that will make it difficult for the country to achieve its climate and clean energy objectives, as the following section shows.

The US Congress and the political economy of energy resources

Although "there has been no comparable shift in presidential policy positions in the last forty years,"[51] it is clear now that the Obama administration did not place climate change as a top priority in his legislative agenda. Urgent actions are needed to fight climate change, but the gradual nature of global warming and the uncertainty over the future timing of most of its effects make it seems less urgent than other matters particularly in a context of economic recession and more palpable needs, such as access to health care or financial reform. Educating the American public on this issue will be more difficult in a context where "the problem to be solved involves the atmospheric release of gases that cannot be seen, smelled or measured without instrumentation".[52] A related problem is the interrelation between Obama's international climate goals and Congressional action. "Obama's stated position is a hard-law approach in which the U.S. joins an international climate treaty with mandatory and binding emissions reduction commitments. Such an international commitment requires two-thirds senatorial support."[53] The Obama White House has not been successful in harvesting the required support from the US Congress, as section this section shows.

Well before the election of president Obama, a growing number of legislative proposals at the US Congress aimed at crafting a new climate change policy through a cap and trade system and targets for long-term carbon emission reductions. According to the Pew Center on Global Climate Change, as of June 2008, 235 bills, resolutions or amendments had been proposed to the 110th Congress. Many of those proposals impressed hope for change, particularly as the votes reflected a reality that contrasted with the 1997 unanimous sense of the Senate resolution, known as the Byrd-Hagel resolution, by virtue of which the Senate directed, by a vote of 95 to 0, the US administration not to sign any agreement that did not include a commitment on the part of developing countries to cut emissions. The legislative branch has been also been quite active, judging by the number of proposals for comprehensive climate and clean energy legislation that were introduced in the 111th Congress.[54]

In 2009, the political momentum seemed to have built around comprehensive climate legislation: a new progressive government that vowed to address global warming, a democrat congressional supermajority and anticipation related to the U.S. position in the Copenhagen climate change conference favored domestic action

on climate change. Optimism peaked on June 26, 2009, when the American Clean Energy and Security Act (ACES) passed the House of Representatives with a final voting of 219 against 212 . Once in the Senate, slight modifications were made by Senators John Kerry and Barbara Boxer ; nevertheless, senate activity on this issue stalled for almost a year due to a series of political circumstances that will be addressed later in this section. The 932-page document built on earlier proposals to present a comprehensive plan that would increase energy efficiency, the participation of renewable sources in America's energy mix, and establish a very controversial economy-wide cap and trade system.

Presented on May 12, 2010, the American Power Act (APA) has probably constituted the last significant attempt to pass energy and climate legislation in the 111th Congress. Although the 987-page proposal included a series of negotiated provisions so as to procure a bipartisan approach, its fate was marked from the beginning by the sudden support withdrawal of the sole Republican drafter of the bill: Lindsey Graham (S.C.) and the polarized political environment produced by the oil spill in the Gulf of Mexico, the contentious debate to reform the financial system, the democrats' strong push to pass healthcare reform and the Senate majority leader hasty move for immigration reform. Thus, the fragile bipartisan environment that was built around energy and climate legislation just vanished. Rather than opting for the economy-wide cap and trade, the APA introduced a sectoral approach, supported lower and middle income American consumers through rebates, much like the "cap and dividend" system previously put forward by Senators Cantwell and Collins; and relied on the promotion of nuclear power development and increased offshore drilling in U.S. waters, which were meant to garner republican support.

The basic structural challenge posed by the political economy of energy resources in the United States explains these negative results. As already mentioned, the vast coal, oil and natural gas resources of the United States are unevenly distributed. While more than 80 percent of US oil reserves are concentrated in only four states (Texas, Alaska, California and Louisiana), US coal reserves are distributed among 26 states[55]. As Skodovin and Alexander note, if the US car industry is added as well as other states that depend on imports of coal-based electricity, it means that "well over half of the US states would be affected by policies and measures to reduce

greenhouse gas emissions". Therefore, in what appears as a permanent feature of the climate change issue, distribution of energy sources "generates a significant dimension in conflicts over climate policies in the United States. The ideological dimension of the climate issues is strong, but the geographical dimension "significantly increases the likelihood of voting no to climate related legislation, regardless of party affiliation"[56]. The opposition to climate legislation is reinforced by party affiliation and therefore the strongest opponents to climate legislation in the U.S. are republicans from coal-extracting regions. Skodovin and Alexander conclude, "even though democrats strengthened their position significantly in the 2008 elections, the political opportunity space on climate policy is not radically different from the 11oth (2006-2008) to the 111th (2009-2011) Congress."[57]

The unexpected regulatory approach to GHG emissions reduction adopted by the Obama administration was regarded as a way to push climate legislation in Congress, under the assumption that the private sector clearly preferred a cost effective market-based policy instrument over regulations. However, moved by letters from over 20 state governors, twenty-five Congressional representatives – mostly coming from fossil-fuel dependent states – presented initiatives to block the EPA's authority over stationary GHG emission sources.[58] Democratic Senator Jay Rockefeller and republican Senator Lisa Murkowski introduced resolutions to either prevent the EPA from requiring permits for GHG sources during the following two years or to block the EPA's authority to regulate GHG emissions altogether. After a contentious debate in the Senate that brought votes to 53 against 47, including six Democrats, Murkowski's resolution was discarded in June.[59] Meanwhile, industry associations, conservative law firms and the states of Texas and Virginia filed petitions to reconsider the endangerment finding on the ground of recent questioning to scientific accuracy of studies by the Intergovernmental Panel on Climate Change (IPCC); all of them were turned down by the EPA last August.[60] But efforts by Senator Rockefeller to remove the EPA's authority to regulate GHG emissions under the Clean Air Act continue and have even gained support from two additional Democrats, i.e., Sens. Mary Landrieu (D-LA) and Ben Nelson (D-NE). Adding fire to the already polarized US political context, the Sierra Club, the Environmental Defense Fund and the Natural Resources Defense Council have recently threatened to sue EPA if it does not promote a

New Source Performance Standards for new and existing sources of GHG emissions. Efforts both at the House and the Senate to repeal the authority of EPA to regulate GHG emissions under the Clean Air Act have continued to this date.[61]

Climate legislation is not foreseeable in the near future, particularly in light of the U.S. Congress political configuration in the aftermath of the 2010 mid-term elections. A continued GHG emissions reduction system led by the EPA would make policy development in the United States harder and trickier to read for the smaller NAFTA partners. Disputes, not only among national trade partners but within the United States itself, would bring the overall system's efficiency down and create an uncertain environment for business and clean technology deployment. Multiple state initiatives, which are discussed in Barry Rabe's chapter in this book, will lead climate policies in the United States, resulting in a map of divergent state regulations, overlapping jurisdictions and cumbersome permitting processes that could very well be every Canadian and Mexican trade-exposed industry's worst nightmare. It would be so for North American global competitiveness as well.

Canadian provinces

While the parliamentary system in Canada provides for a more vertical decision-making for the federal government than it is the case in the United States, the highly decentralized nature of the Canadian political system represents the most fundamental challenge for decision-makers. The distribution imbalance of energy resources across geographical regions in Canada, existing tensions implicit in the decentralization of political power that gives provinces absolute control over natural resources, has complicated the articulation of national policies that tackle the climate change challenge.

In recent years Manitoba and Ontario followed the policy path established by Quebec's and British Columbia's regulations for vehicles and buildings and a carbon tax by adopting comprehensive climate change plans. Ontario also introduced feed-in tariffs to promote renewable energies. As Rabe' s chapter shows, all four provinces have committed to a cap-and-trade system with US states that include a hard cap. In other words, "three quarters of the Canadian population contributing half of Canada's greenhouse gas emissions now live in provinces with stronger regimes for emissions from heavy industry than that of the federal government". Even

Saskatchewan, a province that had been indifferent or hostile to the idea of fighting global warming, came on board.[62] However, the provinces with the highest greenhouse gas emissions, particularly Alberta, are doing nothing to control them and without their participation Canada will not be able to meet its international commitments. Alberta's emissions, largely coming from the oil sands, experienced a 121 per cent increase since 1990.[63]

Indeed, the crux of Canada's climate and energy policies lies in the uneven distribution of mitigation costs across provinces, which have absolute control over natural resources. While Alberta, Saskatchewan and Newfoundland are oil and gas production provinces, British Columbia, Manitoba and Quebec have plentiful hydro-electric power and Ontario is highly dependent on power due to its strong manufacturing base oriented mainly to automotive production. For years federal government efforts under the leadership of Prime Minister Jean Chretien to design national programs on climate change largely relied on voluntary actions and on a collaborative process established with provincial governments through the Joint Meeting of Ministers (JMM)-a forum that included ministers of the environment and energy and which operated under a consensual rule. With the Chrétien government's ratification of the Kyoto Protocol, the consensus collapsed and the federal government recurred to spending for research and development as a means to strike bilateral agreements with willing provinces, which departed from the traditional multilateral federal-provincial process.

Under the government of Paul Martin, six bilateral agreements were negotiated. Also part of the new post-2002 context was the transition to direct federal regulation through the Environmental Protection Act, although the oil and gas industry negotiated that any cost of compliance with such regulations over $15 dollars a tonne would be paid by the federal government.[64] Most significant in undermining Canada's climate policy are the twin problems of having an obstructionist player, such as Alberta, at the time that no other provincial government is willing to lead, as it was the case of California in the United States, and an uncoordinated federal policy, as the one that is exhibited regarding the extraction and export of coal, oil and natural gas.

Mexico's energy monopoly

A highly-centralized decision-making system and a publicly-held monopoly of oil and electricity—through Petroleos Mexicanos (PEMEX) and the Comision Federal de Electricidad (CFE)—should in theory facilitate the adoption and implementation of climate change policies in Mexico. Unfortunately the financial requirements to meet Mexico's climate goals are such, between 7.2 US billion a year between 2011 and 2015 and 18 billion a year between 2026 and 2030,[65] are substantial and will have to come from international sources. One significant institutional constraint is Mexico's Constitutional prohibition to access foreign investment in strategic energy sectors. While recent reforms allow for limited participation for foreign capital, their ownership of the oil produced continues to be prohibited and is therefore not attractive for foreign oil producers.[66]

Also limited the ability of the Mexican government to finance the transition to a low-carbon economy is the role of PEMEX revenues as over a third of the federal government budget, making it impossible for reinvesting needed resources in new exploration that could address the imminent challenge of Mexico becoming a net importer of oil in less than a decade. Fossil fuel, both electricity and gasoline, subsides are a related problem that inhibits the Mexican federal government's ability to invest in new renewable energy projects. According to one estimate, the total cost of such subsidies reached 2 per cent of Mexico's GDP in 2008 or $20 US billion.[67]

The Constitutional requirement that CFE purchases power at the lowest possible cost is another institutional restriction to the development of renewable electricity in Mexico. Under these conditions renewable energy projects cannot compete with fossil-fuel energies, even in spite of Mexico's global competitiveness in the development of some renewable energy sources, like wind.[68] For this and other reasons that are explained more in detail in Etcheverry's paper, the private sector participation in the Mexican electricity market is quite low, holding about a fifth of the total market share.[69]

It is interesting to note that in the late 1990s Petroleos Mexicanos (PEMEX) became a vocal advocate for action on climate change, becoming the "first and only developing country oil company" to have developed, with the assistance of Environmental Defense Fund an under the Partnership for Climate Action, a company-wide carbon emission reduction target and to pilot an internal corporate emissions trading system which was implemented between 1999 and 2002. The program was then extended to Comision Federal de Electricidad, the

public nation-wide electric utility in Mexico. Many of these mostly energy efficiency projects participated in the CDM and were seen as a way to channel foreign investment. Today, Mexico is fourth in the list of countries who registered the largest number of CDM projects; and the fiftieth in receiving Certified Emission Reductions. Over 100 big scale projects were developed by Pemex and CFE. While there were plans to develop an internal market for Carbon Emissions Permits which would operate from June 2001 and May 2005, with the goal of reducing carbon emissions, mainly through energy efficiency projects, by 10 percent in ten years with respect to those recorded in 1999, at 41.5 million tons, the project never took off. In fact, there is a large potential for GHG emissions reductions through cogeneration projects at PEMEX facilities and reduction of gas flaring and venting.[70]

Concluding Remarks

The absence of a strong demand, or economic constituencies in North America, that push for the creation of a regional climate change regime that could take advantage of existing and potential opportunities in North America explain the limited scope of the high-level interactions and commitments to develop a sound bilateral and trilateral climate change and clean energy agenda. But domestic constraints in all three countries, particularly in the United States, also show the limited scope of the supply for a regional climate change regime, which inhibits such bilateral and trilateral North American policy dialogues from being translated into relevant projects that can effectively address climate change from a regional perspective. In the absence of both a supply and a demand for a climate change regime, existing bottom-up, transgovernmental collaborative networks are not strong enough as to push for the emergence of such a regime, even if there are high levels of energy interdependence and strong linkages between energy security and vulnerabilities to climate change.

Power asymmetries are also relevant in North America. Canada and Mexico are policy takers and have no powerful incentives to move aggressively in favor of building a climate change regime. However, in the face of its energy insecurity stemming from dwindling oil resources, Mexico has undertaken a leadership role in the fight against climate change. Canada has little incentives to follow Mexico or a different path to the one defined by its Southern neighbor. Without a positive engagement of the US Congress to introduce energy reform and

measures to reduce carbon emissions in a comprehensive manner, Mexico's climate efforts will have a narrow impact on the North American region as a whole.

Endnotes

[1] I want to express special gratitude to Sofia Viguri and Rachel Listinsky, who provided research assistance, gathered statistical information and other bibliographical resources for this paper. I am fully responsible for all factual errors or problems of interpretation that may appear in the present chapter.
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[6] Skodvin, Tora and Andresen, Steinar (2009), 268.
[7] Rosencranz, A. and Conklin, R. (2010), 346-347.
[8] Brunée, Jutta (2008), 13.
[9] Rosencranz and Conklin (2010), 243. His campaign commitments included: invest approximately 15 billion a year for 10 years in cleaner energy, associated with 5million new jobs. Reduce oil imports by volumes equal to the imports from Venezuela and the Middle East within ten years; modernize the national electricity grid; reengage in international negotiations; reduce 20% emissions by 2020, and 80% by 2050 using a cap and trade system; a $1,000 energy rebate for every family (from oil company profits); fuel efficiency through a 4billion loan program for the auto industry; ensure that 10% of electricity is generated from renewable resources by 2012, 25% by 2025; extend tax credits for renewable 5 years more (Gallagher, Kelly & Ellwood, David T. (2009): Acting in Time for Energy Policy. Brookings Institution Press)
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[11] EPA initially included 31 of the 42 source categories listed in the rule, but proposed in March to include fugitive and vented emissions from oil and gas facilities, geologic sequestration sites, sources of fluorinated GHGs, onshore natural gas production facilities, local natural gas distribution companies, and expand towards including facilities of U.S. territorial waters and the Outer Continental Shelf. See: "Greenhouse Gas Reporting Program" *Climate Change Regulatory Initiatives, Environmental Protection Agency*. Available at: http://www.epa.gov/climatechange/emissions/ghgrulemaking.html
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[13] See: "Presidential Memorandum Regarding Fuel Efficiency Standards" *The White House Office of the Press Secretary*. May 21, 2010. Available at: http://www.whitehouse.gov/the-press-office/presidential-memorandum-regarding-fuel-efficiency-standards
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[21] National Round Table on the Environment and the Economy (2011), 42.
[22] "Canada's total Greenhouse Gas Emissions Decreased in 2008". Environment Canada, April 15, 2010. Date of access: September 14, 2010. Available at: http://www.ec.gc.ca/default.asp?lang=En&n=714D9AAE-1&news=FC46978A-85F8-4BB5-B1BF-3DE20350E0C0
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[25] For a review of the progress made by Mexico in many renewable energy projects and on deforestation, see Meera Fickling and Jeffrey J. Schott, "NAFTA and Climate Change", in Schott, Jeffrey J., Fickling, Meera and Lat, Tanya, *Aligning Nafta With Climate Change Objectives,* Washington DC: Peterson Institute for International Economics, 2010.
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[38] National Round Table on the Environment and the Economy (2011), 24.
[39]In 2007, coal represented 23% of primary energy consumption in the United States, see EIA 2009
[40] According to the NRTEE 2011 report, emissions from industry are forecast to account for nearly 50 % of total GHG emissions in Canada in 2030 — compared to around 15 % in the United States.
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[44] "EIA: Clean air, clean water, clean energy jobs bill would make America more energy independent, cutting U.S. foreign oil bill $650 billion through 2030, saving $5,600 per household" in: *Climate Progress*, with data from U.S. EIA, August 2009. Available at: http://climateprogress.org/2009/09/10/eia-clean-air-clean-water-clean-energy-jobs-bill-energy-independent-oil-savings/
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