Climate Law and Policy in North America: Prospects for Regionalism†

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† This paper was originally presented at the IUCN Academy of Environmental Law Conference on Climate Law in Developing Countries Post 2012: North and South Perspectives held in Ottawa, Canada on September 26-28, 2008. The paper was also presented at a Research Workshop on Regional Climate Change Governance in North America held at the Tecnologico de Monterrey in Mexico City on January 19-20, 2009. The authors are grateful to the participants of these events for the discussion of ideas related to the paper. The writing of the paper was supported by grants from the Harrison McCain Foundation, The Social Sciences and Humanities Research Council of Canada, and the Department of Foreign Affairs and Trade—North America Research Linkages Program (Canada). Outstanding research assistance was provided by Katie Ireton (LLB, 2009, University of New Brunswick).

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I. INTRODUCTION

With the U.S. rejecting the Kyoto Protocol, Canada acknowledging that it is unlikely to meet its Kyoto commitments, and Mexico, as a developing state, not being required to reduce its GHG emissions within the Kyoto framework, the state of climate-change law and policy in North America for the past decade has looked bleak. However, as the trajectory of global climate-change governance after 2012 shifts towards a multi-level, multi-track framework, there may be greater opportunities for trilateral cooperation on climate change in North America. There is increased momentum for greater cooperation in climate change arising from the election in the U.S. of Barack Obama, who has committed to "re-engage" with the United Nations Framework Convention on Climate Change (UNFCCC) process.[1] Mexico has signaled its willingness to accept binding, long-term emissions-reduction targets within the UNFCCC framework.[2] The Canadian government, for its part, has indicated its desire to negotiate a continental "cap-and-trade" agreement with the U.S. and Mexico.[3] Moreover, at the sub-national level, constituent governments are increasingly looking to their counterparts within and outside the state to coordinate greenhouse gas (GHG) mitigation activities.[4]

In light of these developments, this Article surveys the current bilateral and trilateral initiatives aimed at GHG emission reductions in North America with a view to assessing the nature and potential role of

1. Organizing for America: BarackObama.com, Energy, http://www.barackobama.com/issues/newenergy/index.php (last visited Oct. 28, 2009). That momentum has been furthered by legislative action on the American Clean Energy and Security Act of 2009, which would, *inter alia*, set new standards for power generation, accelerate development of clean energy technologies, fund energy efficiency programs, and create a cap-and-trade program for U.S. greenhouse gases. *See generally* H.R. 2454, 111th Cong., *available at* http://www.opencongress.org/bill/111-h2454/text.

2. Mexico made this commitment, which is conditioned on financial and technological assistance, at the Fourteenth Meeting of the UNFCCC Conference of the Parties. Chris Holly, *Mexico Sets Greenhouse Cut of 50 Percent By 2050—If Aid Provided*, THE ENERGY DAILY, Dec. 12, 2008, *available at* http://www.ccap.org/index.php?component=news&id=158.

3. David Ljunggren, *Canada Wants North America Cap-and-Trade System*, REUTERS, Nov. 19, 2008, http://www.reuters.com/article/environmentNews/idUSTRE4AI7012 0081119.

4. *See* discussion of Western Climate Initiative *infra* note 100 and accompanying text.

regional climate-change law and policy within a broader global framework. In this context, by regional cooperation, we mean cooperation organized on a North American scale. In pursuit of this objective, this Article seeks to identify, first, how climate-change mitigation may be regulated usefully on a regional scale and, second, the governance structures and institutions that may be drawn upon to create and implement regional cooperation on climate change. Particular consideration is also given to the capacity of regional approaches to climate-change cooperation to meet the different climate-change objectives that Mexico has identified, given the less developed state of its economy.

In order to frame the context of the discussion that follows, Part II provides a brief discussion of the current development of global climate-change governance towards a more diffuse, multi-centric structure. Proceeding from the basis that regional environmental cooperation requires that the participating states have common policy objectives, Part III canvasses the international commitments, stated policy objectives, and existing policy structures addressing climate change in Canada, Mexico, and the U.S. Because we aim to identify the broad contours of potential cooperation in addressing climate change, the particular commitments and policy approaches are described in summary form, with an emphasis on identifying areas of commonality. Part IV considers in greater detail the prospects for regional climate-change governance in North America. Here, we seek to identify the potential forms of climate-change regulation that are likely to benefit from regional cooperation. We also consider the potential of the principal existing regional environmental governance structures, the Commission for Environmental Cooperation and the Security and Prosperity Partnership, to contribute to the formation and implementation of climate-change law and policy. Finally, Part V considers the capacity for regional climate-change governance structures to meet Mexican climate-change objectives. These structures include improved GHG reporting, nationally appropriate mitigation actions, continued economic development, access to technology, and improved climate-adaptation capabilities. The conclusion describes a future research agenda for North American climate-change governance.

II. CONTEXT: MULTI-LEVEL AND MULTI-TRACK CLIMATE-CHANGE GOVERNANCE

As the first commitment period—2008 to 2012—of the Kyoto Protocol draws to a close and states look towards the negotiation of a

new global compact on climate change, two important characteristics of the nature of climate-change governance are becoming apparent. First, climate-change governance is becoming increasingly multi-level in its architecture.[5] Whereas the UNFCCC and the subsequent Kyoto Protocol operate on a global scale, there are now numerous examples of climate-change governance structures that involve actors both below and above the state, organized on multiple scales. The European Union (EU) has chosen to implement its Kyoto Protocol obligations through regional measures and has, in fact, made collective commitments to reduce GHG emissions irrespective of the commitments of other states.[6] The Asia-Pacific Partnership on Clean Development and Climate (APP) is a further, albeit looser, example of regional climate-change cooperation.[7] In North America, sub-national governments have organized climate-change initiatives on a sub-regional basis, with participating governments from both the U.S. and Canada, and a number of Mexican states are participating as observers.[8]

The transnational dimension of sub-regional climate-change cooperation is significant because it demonstrates the potential for environmental cooperation beyond the state without the participation of national governments or, at least, without sub-national interests being aggregated at the national level. In the case of North American climate-change law and policy, the lack of national leadership has led to the creation of a policy vacuum that sub-national governments are addressing.[9] The decentralized nature of environmental governance and energy regulation in North America has facilitated this process since sub-national governments have significant pre-existing environmental responsibilities,

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5. For theoretical discussion of multi-level governance in climate change, see generally Michele M. Betsill & Harriet Bulkeley, *Cities and the Multilevel Governance of Global Climate Change*, 12 GLOBAL GOVERNANCE 141 (2006) and Barry G. Rabe, *Beyond Kyoto: Climate Change Policy in Multilevel Governance Systems*, 20 GOVERNANCE: AN INT'L J. OF POL'Y, ADMIN., & INSTITUTIONS 423 (2007).

6. *See, e.g.*, Council Decision 406/2009/EC, Decision on the Effort of Member States to Reduce Their Greenhouse Gas Emissions to Meet the Community's Greenhouse Gas Emission Reduction Commitments Up to 2020, 2009 O.J. (L 140) 137 (joint decision of European Parliament and European Council).

7. *See generally* Charter of the Asia-Pacific Partnership on Clean Development and Climate, Jan. 11-13, 2006, http://www.asiapacificpartnership.org/pdf/resources/charter.pdf (Canada joined the APP in Nov. 2007).

8. For a description of cooperative efforts and a full list of members and observers, see, for example, Western Climate Initiative, Home Page, http://www.westernclimateinitiative.org/ (last visited Oct. 28, 2009).

9. BARRY G. RABE, REGIONALISM AND GLOBAL CLIMATE CHANGE POLICY: REVISITING MULTI-STATE COLLABORATION AS AN INTERGOVERNMENTAL MANAGEMENT TOOL 2-3 (2008), http://www.allacademic.com (change query type to "Authors" on left side of page; then type "Barry Rabe" and click "Go;" then click on title of paper) (presented at the Annual Meeting of the Midwest Political Science Association).

many of which overlap with climate change, such as air pollution, control over natural resources, and land-use decisions. Likewise, jurisdictional control over matters such as land-use and transportation planning, as well as local air quality, has given municipalities a platform from which to pursue local climate initiatives.

The relationship between levels in multi-level governance structures is non-exclusive in the sense that different levels of government may address the same issues. Cooperation is also non-hierarchical, with cooperative activities being organized both vertically, between actors at different levels, and horizontally, between actors at the same level. California has, for example, entertained climate-change initiatives with both other states and other national governments.[10] Similarly, New Jersey sought to provide opportunities for Dutch companies to obtain emissions trading credits for activities undertaken in New Jersey.[11]

The second emerging characteristic is the increasingly multi-track nature of climate-change governance—that climate-change negotiations are no longer solely focused on extending the Kyoto Protocol beyond 2012 and broadening participation in the GHG-reduction commitments found in the Protocol.[12] There appears to be an international consensus that the UNFCCC should remain the principal basis upon which future international negotiations should go forward.[13] Thus, the objectives and principles agreed to in the UNFCCC will provide a universal normative basis for future negotiations. However, the top-down "targets and timetables" approach adopted in the Kyoto Protocol is not likely to be

10. *See, e.g.*, OFFICE OF THE GOVERNOR, UNITED KINGDOM AND CALIFORNIA ANNOUNCEMENT ON CLIMATE CHANGE AND CLEAN ENERGY COLLABORATION (2009), http://gov.ca.gov/index.php/fact-sheet/united-kingdom-and-california-announcement-on-climate-change-clean-energy-c/; David B. Hunter, *The Future of U.S. Climate Change Policy*, *in* A GLOBALLY INTEGRATED CLIMATE POLICY FOR CANADA 79, 96 (Steven Bernstein et al. eds., 2008).

11. *See* Kirsten H. Engel, *Mitigating Global Climate Change in the U.S.: A Regional Approach*, 14 N.Y.U. ENVT. L.J. 54, 68 (2006).

12. Daniel Bodansky, *Targets and Timetables: Good Policy but Bad Politics?*, *in* ARCHITECTURES FOR AGREEMENT 57, 59 (Joseph E. Aldy & Robert N. Stavins eds., 2007).

13. The United Nations Climate Change Conference, Thirteenth Session, Bali, Dec. 3-15, 2007, *Report of the Conference of the Parties on its Thirteenth Session, Held in Bali from 3 to 15 December 2007. Addendum. Part Two: Action Taken by the Conference of the Parties at its Thirteenth Session.* FCCC/CP/2007/6/Add.1 (Mar. 14, 2008), *available at* http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf [hereinafter Bali Action Plan]; *see* Group of Eight [G8], *G8 Hokkaido Toyako Summit Leaders Declaration* ¶ 22 (July 8, 2008), http://www.mofa.go.jp/policy/economy/summit/2008/doc/doc080714_en.html [hereinafter *Summit Leaders Declaration*].

the exclusive approach taken. The Bali Action Plan, which sets out the broad framework for future climate-change negotiations within the UNFCCC, recognizes that approaches to cooperative action on mitigation may take a number of different forms beyond economy-wide quantified emission-limitation and reduction commitments, including sector-specific actions as well as cooperation on technology development and transfer of technology.[14] The approach adopted by the Group of Eight (G8), which includes all three North American governments, in the *Declaration of Leaders Meeting of Major Economies on Energy Security and Climate Change* acknowledges the role of the UNFCCC as the global forum for climate-change negotiation, but it also stresses the importance of technology-driven solutions, land-use change, and adaptation.[15]

A multi-track climate framework means that states may negotiate multiple, overlapping sets of commitments in accordance with their specific national circumstances.[16] States may have preferences for different approaches to climate-change mitigation, such as favoring carbon taxes over emissions trading or focusing on developing technology- based solutions.[17] They may also differ in the degree to which they are willing to adopt legally binding, international commitments, with some states preferring soft-law commitments to hard-law commitments with strong compliance features. In some cases, such as with the European Union Greenhouse Gas Emission Trading System (EU ETS), states may choose to develop collective responses that are highly integrated with the UNFCCC and Kyoto.[18] But as the APP illustrates, states may also choose to develop a framework that is largely parallel and supplementary to other international cooperative efforts.

The pluralist trajectory of climate-change governance provides greater scope for regional initiatives that are oriented towards specific national

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14. *See* Bali Action Plan, *supra* note 13, at 4.

15. G8, *Declaration of Leaders Meeting of Major Economies on Energy Security and Climate Change* ¶ 1 (July 9, 2008), http://www.mofa.go.jp/policy/economy/summit/2008/doc/doc080709_10_en.html [hereinafter *Major Economies*].

16. DANIEL BODANSKY & ELLIOT DIRINGER, TOWARDS AN INTEGRATED MULTI-TRACK CLIMATE FRAMEWORK 3 (2007), *available at* http://www.pewclimate.org/multi-track; *see* David G. Victor, *Fragmented Carbon Markets and Reluctant Nations: Implications for the Design of Effective Architectures* in ARCHITECTURES FOR AGREEMENT 133 (Joseph E. Aldy & Robert N. Stavins eds., 2007).

17. *See generally* Joseph Aldy et al., *Thirteen Plus One: A Comparison of Global Climate Policy Architectures*, 3 CLIMATE POL'Y 373 (2003); DANIEL BODANSKY ET AL., INTERNATIONAL CLIMATE EFFORTS BEYOND 2012: A SURVEY OF APPROACHES (2004), *available at* http://www.pewclimate.org/ (follow "more" hyperlink under "Reports"; then click on title of article).

18. Jutta Brunnée & Kelly Levin, *Climate Policy Beyond Kyoto: The Perspective of the European Union* in A GLOBALLY INTEGRATED CLIMATE POLICY FOR CANADA 58, 62-63 (Steven Bernstein et al. eds., 2008).

and regional conditions. Bodansky and Diringer note that increased flexibility is the primary advantage of a multi-track framework since states are more likely to participate in cooperative actions that are well suited to their domestic economic and political requirements.[19] Where those requirements are regional in scope because of common geographical features, closer economic integration, or shared political institutions, there may be advantages to regionally based arrangements. When one considers the multi-level aspect of climate-change governance, flexibility also provides improved opportunities for actors, such as sub-national governments and non-state actors, who are not formally recognized in international law, to respond to global climate change in accordance with their preferences, without necessarily having those preferences aggregated and possibly subsumed by national governments.[20]

The potential costs of increased flexibility are a loss of broader policy coherence and a lack of reciprocity between states. The latter concern is particularly important given the strong incentives for free-riding associated with climate-change mitigation. As a consequence, continued coordination of the various tracks in a multi-track framework is necessary. The ability to accurately track emissions and require disclosure of emissions data is a baseline requirement for continued cooperation, particularly because reliable comparison of emissions-reduction information enhances the opportunity for linking different tracks.[21] Comparability provides states with assurances that their own sacrifices are being reciprocated by other states and a basis for assessing the fairness of climate-change burden allocation globally. Some U.S. climate bills have proposed trade restrictions on goods coming from countries that do not have "comparable" climate-change regulations.[22] The ability to

19. BODANSKY & DIRINGER, *supra* note 16, at 3-5.

20. Consider, for example, the differences in policy between the Provinces of Alberta and Québec. Alberta, with a heavy economic reliance on emissions-intensive industries, such as oil and gas, does not seek to implement emission reductions in the short term; Québec, on the other hand, generates and exports hydro-electric, and is more willing to adopt more stringent emissions-reduction targets. *See* COUNCIL OF THE FEDERATION, CLIMATE CHANGE: LEADING PRACTICES BY PROVINCIAL AND TERRITORIAL GOVERNMENTS IN CANADA 3-6 (2007), *available at* http://www.councilofthefederation.ca/pdfs/CCInventoryAug3_EN.pdf.

21. For example, there may be benefits to allowing emissions trading across different governance structures. For a discussion of attempts by New Jersey to participate in the EU-ETS, see, for example, Engel, *supra* note 11, at 68.

22. *See, e.g.*, Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 502(f) (2007), *available at* http://thomas.loc.gov/cgi-bin/query/z?c110:S.1766.

compare regulatory programs and to demonstrate similar levels of burdens on trade-competitive sectors may be necessary to avoid these kinds of protectionist measures in climate legislation. Since cooperative arrangements may be developed on multiple levels, coordination requires both vertical integration between levels and horizontal integration between various tracks. The complexity of integration suggests that states should approach the negotiation of multiple climate-change arrangements with considerable caution, as the transaction costs and the costs of increased fragmentation may outweigh the benefits of flexibility. Increased governance arrangements are not an unalloyed good.

III. THE EXISTING GOVERNANCE LANDSCAPE: CLIMATE CHANGE COMMITMENTS AND POLICIES

A. North American GHG Emissions

To understand the existing governance landscape, it is first helpful to take stock of the basic GHG-emissions conditions in North America. Looking at the statistics in Figure 1 (see below at page 207), the principal condition that must be accounted for is the asymmetry in emissions between the three North American countries. On an absolute basis, U.S. emissions are much greater than both Canada and Mexico, owing to its larger economy; on a per capita basis, Mexico's emissions are significantly less—one-fourth—than those of Canada and the U.S. This asymmetry will likely impact the architecture of any regional climate structure. For example, regional cooperation will need to account for Mexico's lower per-capita emissions and its higher emissions-growth rate, possibly through the application of differential-reduction requirements. Relative to absolute emissions, it might be expected that market-based structures, such as trading systems, will reflect the fact that U.S. emissions will account for the majority of the market. Since the U.S. gains relatively less in terms of access to a larger market, it may have less incentive to adjust its domestic programs to meet regional requirements.[23] The GHG intensity numbers in the bottom of Table 1, which indicate the amount of GHGs emitted per economic output (GDP), show that Mexico, and to a lesser extent, Canada, release more emissions to produce the same amount of

23. *See, e.g.*, Kal Raustiala, *The Architecture of International Cooperation: Transgovernmental Networks and the Future of International Law*, 43 VA. J. INTL. L. 1, 58-61 (2002) (noting that regulatory convergence will often result in adoption of the standards of more powerful states).

TABLE 1 BASIC GHG STATISTICS FOR NORTH AMERICA

	Canada	**U.S.**	**Mexico**
GHG Emissions in 2006 ($MtCO_2e$) (excluding Land Use, Land-Use Change, and Forestry [LULUCF])[24]	718	7006	553 (in 2002)
GHG Emissions in 2006 ($MtCO_2e$) (including LULUCF)	760	6001	643
GHG Emissions in 1990 ($MtCO_2e$) (excluding LULUCF)[25]	592	6084	425
Change in emissions from 1990-2006 (excluding LULUCF)	21%	15%	30% (in 2002)
Contribution to Global GHG Emissions in 2004 (excluding Land-Use Change and Forestry)[26]	2.1%	22%	1.5%
GHG emissions per capita in 2000 (tCO_2e) (excluding Land-Use Change and Forestry)[27]	22.1	24.5	5.2
Emissions Intensity in 2006 (tCO_2e/millions of dollars (GDP-PPP)) (including LULUCF)[28]	652	464	701 (in 2002)

24. UNFCCC, Greenhouse Gas Inventory Data, http://unfccc.int/di/DetailedByParty.do (to obtain data select "Canada," "United States" and "Mexico" under "Select Party;" select "All years" under "Select Years;" select "Total GHG emissions excluding LULUCF/ LUCF" under "Select Category" and select "Aggregate GHGs" under "Select Gas") (last visited Oct. 28, 2009).

25. UNFCCC, Greenhouse Gas Inventory Data, http://unfccc.int/di/DetailedByParty.do (to obtain data select "Canada," "United States" and "Mexico" under "Select Party;" select "All years" under "Select Years;" select "Total GHG emissions including LULUCF/LUCF" under "Select Category" and select "Aggregate GHGs" under "Select Gas") (last visited Oct. 28, 2009).

26. World Resources Institute, Climate Analysis Indicators Tool [CAIT], http://cait.wri.org/ (register and log into CAIT; then click "CAIT" under "Access CAIT Products;" then follow hyperlink to "Yearly Emissions") (last visited Oct. 28, 2009).

27. KEVIN BAUMERT ET AL., NAVIGATING THE NUMBERS: GREENHOUSE GAS DATA AND INTERNATIONAL CLIMATE POLICY 22 (2005), *available at* http://www.wri.org/publication/navigating-the-numbers (follow "full report" hyperlink).

28. International Monetary Fund, World Economic Outlook Database (Sept. 2006), http://www.imf.org/EXTERNAL/PUBS/FT/WEO/2006/02/DATA/INDEX.ASPX (last visited Oct. 28, 2009) (source of GDP figures). The emissions intensity numbers were calculated using 2006 (Canada and U.S.) and 2002 (Mexico) GHG emissions, including LULUCF.

economic output as the U.S. This suggests that there may be potential for increased emissions efficiency in both Canada and Mexico.

Broken down by sector (see Figure 2 below at page 207), the GHG inventories for Canada, Mexico, and the U.S. look fairly similar, with the exception of higher emissions from land use, land-use change, and forestry in Canada and Mexico, and higher emissions from waste in Mexico. The GHG emissions by gas type reflect similar emissions patterns. Given the broad range of activities that occur within each of these sectors, a more exacting analysis is required to assess potential for sectoral programs in North America. Further study should identify, *inter alia*, those sectors that make significant GHG contributions within each state, sectors that have sharp emission rate increases, and those sectors where GHG intensity levels differ between countries, suggesting opportunities for improvement with existing technology.[29]

One area where there is a higher degree of difference among Canada, Mexico, and the U.S. is vulnerability to the impacts of climate change. The differences in vulnerability are affected by both geographic and economic factors.[30] Quantifying vulnerability to climate change remains difficult, but one global study indicated that Canada was the least vulnerable of the states and showed that Mexico has markedly higher vulnerability.[31] Another study focusing on Mexican vulnerability indicated that infrastructure, human capital, and economic factors were strong determinants of vulnerability.[32] The differences in vulnerability have implications for the relative priorities of mitigation and adaptation, with Mexico needing to direct greater resources to improving its resilience towards climate change than Canada and the U.S. Such differences do not undermine regional cooperation but are likely to influence its form. For example, Mexico is more likely to want to include technical assistance and financing for adaptation measures as part of a broader regional climate cooperation initiative.[33]

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29. *See* Daniel Bodansky, International Sectoral Agreements in a Post-2012 Climate Framework 9-10 (May 2007) (unpublished working paper), http://www.pewclimate.org/working-papers/sectoral (follow hyperlink "download entire report"). Bodansky also suggests economic and political—"negotiability and participation"—factors. *Id.* at 10-11.

30. María Eugenia Ibarrarán Viniegra & Salimah Mónica Cossens González**,** *Climate Change Research and Policy in Mexico: Implications for North American Security*, 35 POL. & POL'Y 684, 684 (2007); Intergovernmental Panel on Climate Change [IPCC], *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* 26 (2008), *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf.

31. *New Report Assesses Countries' Climate Change Vulnerability*, CSR EUR., Aug. 12, 2008, http://www.csreurope.org/news.php?type=&action=show_news&news_id=1598.

32. Viniegra & González, *supra* note 30, at 691.

33. Mexico's greater need for adaptation is reflected in their domestic policies discussed *infra* Part 2(c).

B. International Commitments and Programs

Appendix 1 sets out in comparative form a summary of Canada's, Mexico's, and the U.S.'s respective international commitments and participation in international programs relating to climate change. In Appendix 2, we have prepared another chart comparing each national government's domestic climate change policies. In what follows, we draw out the key areas of commonality and difference in climate-change policy among these states.

The starting point for each state is common participation in the UNFCCC regime. As a framework treaty, the UNFCCC does not impose quantified obligations on the parties; rather, it commits the parties to additional cooperative activities in furtherance of the overall objective of stabilizing atmospheric GHGs at non-dangerous levels.[34] Despite the disengagement by the U.S. from the Kyoto Protocol, the UNFCCC has been repeatedly affirmed by Canada, Mexico, and the U.S. as the appropriate forum for continued global negotiation on climate change.[35] The U.S. has, for example, continued in its financial support for the regime itself, the Intergovernmental Panel on Climate Change (IPCC), and through contributions to the Global Environmental Facility.[36] The current significance of the UNFCCC is the continued acceptance of the principle of "common but differentiated responsibilities" that underlies the basic architecture of the UNFCCC.[37] In the North American context, Canada and the U.S. are identified as Annex I states with primary responsibility for addressing climate change.[38] Mexico, as a non-Annex I party, is obligated to undertake mitigation measures taking into account its development goals and national circumstances and to cooperate in addressing global climate-change impacts and causes.[39]

The need for integration of regional initiatives within a global framework will require consistency between the UNFCCC and any regional framework. The "broad but shallow" architecture of the UNFCCC

34. United Nations Framework Convention on Climate Change art. 2, May 9, 1992, 1771 U.N.T.S. 107 [hereinafter UNFCCC].

35. *Major Economies*, supra note 15, ¶ 1; *Summit Leaders Declaration*, *supra* note 13, ¶¶ 22-23; Bali Action Plan, *supra* note 13, at 3.

36. U.S. DEP'T OF STATE, U.S. ACTIONS TO ADDRESS ENERGY SECURITY, CLEAN DEVELOPMENT & CLIMATE CHANGE 34 (2008).

37. UNFCCC, *supra* note 34, at art. 3(1).

38. Also, Annex I states hold further responsibilities to assist developing states with adaptation measures. *Id*.

39. *Id.* arts. 4(1)(b)-(c).

does not impose significant constraints, and the language of the treaty acknowledges in several provisions the possible role of regional cooperation.[40] The acceptance by all three North American states of a common methodology for calculating national GHG inventories and reporting those to the UNFCCC will facilitate integration. The IPCC process also provides a common scientific basis for the development of regional policies. The IPCC's work on climate vulnerability has, for example, been undertaken on a regional basis and may provide an agreed-upon starting point for regional approaches to adaptation.

The asymmetrical architecture of the UNFCCC was carried over into the Kyoto Protocol, with Canada and the U.S. agreeing to economy-wide GHG emission reductions of 6% and 7%, respectively, but not requiring reciprocal cuts from developing countries. The U.S. did not ratify the Protocol. Although Canada is a party to the Protocol (as is Mexico as a non-Annex B party), it has acknowledged that it will not meet its Kyoto obligations. It is increasingly clear that Canada is moving away from the Kyoto "targets and timetables" model. Canada's most recent domestic policy approach emphasizes emissions intensity, as opposed to absolute reductions, and defines its emissions-reduction goals in terms of a 2006 baseline, as opposed to a 1990 baseline. Given the current stance of Canada and the evolving U.S. position, it is unclear whether Canada and the U.S. will agree to short- to mid-term economy-wide emissions reductions. To date, the three North American states have placed greater emphasis on long-term targets. For example, the Bali Action Plan, adopted at the 13th Meeting of the UNFCCC Conference of the Parties, simply calls for the adoption of a "long-term global goal for emissions reduction."[41] A similar emphasis on long-term goals was made in the *Declaration of Leaders Meeting of Major Economies on Energy Security and Climate Change*, in which Canada, Mexico, and the U.S. participated.[42] At the 14th Meeting of the UNFCCC Conference of the Parties, Mexico pledged to reduce its GHG emissions by 50% by 2050 from a 2002 baseline.[43] U.S. President Barack Obama has similarly indicated his administration's intention to see the U.S. reduce its emissions by 80% from its 1990 levels by 2050.[44] This target has been affirmed by the House of Representatives in the American Clean Energy

40. *Id.* arts. 4(1)(b), 6(a), 11(5).
41. Bali Action Plan, *supra* note 13, at 3.
42. *Major Economies*, *supra* note 15, ¶ 2.
43. Holly, *supra* note 2.
44. Barack Obama and Joe Biden: Promoting A Healthy Environment, http://www.barackobama.com/pdf/issues/EnvironmentFactSheet.pdf (last visited Oct. 16, 2009).

FIGURE 1

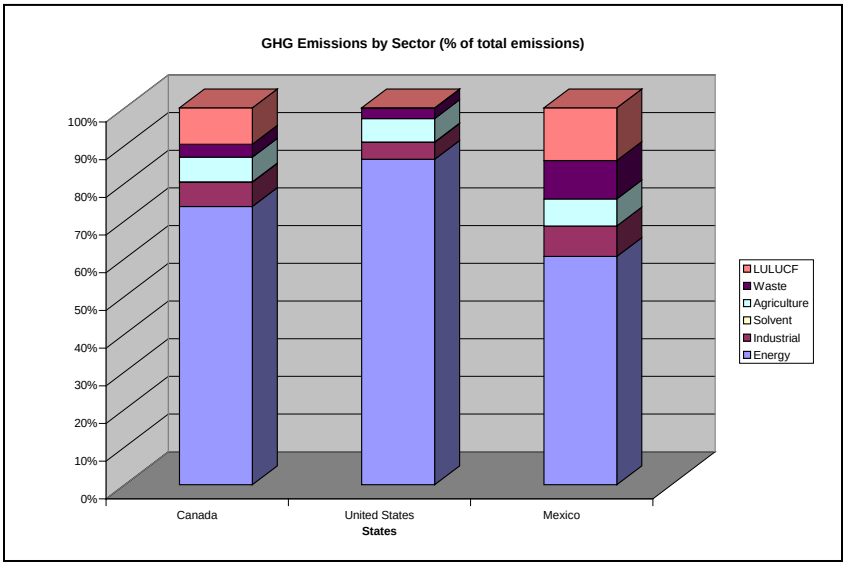
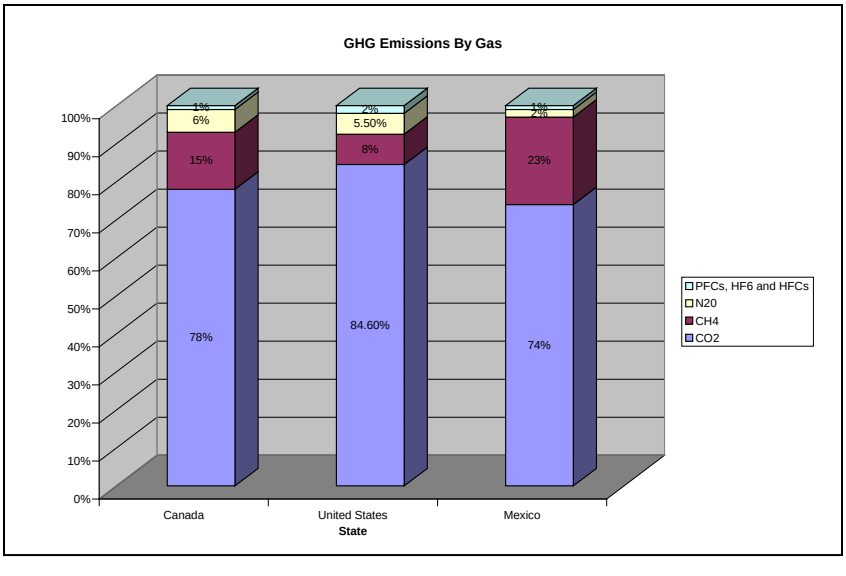


FIGURE 2



and Security Act of 2009.[45] Canada, for its part, has indicated its intention to reduce its emissions by 60-70% by 2050, using a 2006 baseline.[46]

Both Canada and Mexico have participated in the Clean Development Mechanism (CDM) under the Kyoto Protocol; although, to date, no CDM projects have been concluded between Canada and Mexico.[47] Canada has not used the joint-implementation or emissions-trading mechanisms under the Kyoto Protocol. Canada's current domestic climate-change policy allows for the use of credits generated from CDM projects by private firms to satisfy those firms' domestic emission reduction obligation. However, Canada's continued participation in the CDM process is far from certain. Regardless of the precise scheme, through their current participation, Canada and Mexico have developed capacity to design and implement creditable projects. Demonstrable governance capacity in relation to marketable emissions credits is particularly desirable, as it ensures that credits are not granted for unrealized or temporary emissions reductions. The potential for multiple emission-credit markets and the possibility of credits being "double-counted" again underscores the importance of integrating parallel policy frameworks.[48]

From a regional perspective, the move away from short-term, economy-wide targets at the global level will create policy space for bottom-up approaches that focus more on creating the conditions for reducing emissions than the top-down approach.[49] The most prominent existing example of a much looser form of international climate-change cooperation is the APP, which includes the U.S. and Canada, as well as major Pacific Rim economies.[50] The APP is not a formally binding treaty but, rather, provides a framework for exchanging information and other cooperative activity between states with a primary focus on energy

45. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 311 (2009).

46. *Turning the Corner: Taking Action to Fight Climate Change* (Mar. 2008), http://www.ec.gc.ca/doc/virage-corner/2008-03/brochure_eng.html.

47. *See infra* Appendix 1.

48. For a discussion of some of the accounting complexities and problems with the CDM, see generally Michael Wara & David Victor, *A Realistic Policy on International Carbon Offsets* (Stanford Univ. Program on Energy and Sustainable Dev., Working Paper No. 74, 2008), *available at* http://iis-db.stanford.edu/pubs/22157/WP74_final_ final.pdf.

49. The distinction between "top-down" and "bottom-up" approaches is discussed in BODANSKY ET AL., *supra* note 17, at 9-10.

50. Charter of the Asia-Pacific Partnership on Clean Development and Climate, *supra* note 7. APP members include: Australia, China, Canada, India, Japan, South Korea, and the U.S. *Id.*

cooperation.[51] The APP's voluntary approach allows for broad participation of countries that have traditionally resisted binding emissions reductions.[52] The cost of securing participation is that environmental effectiveness of the APP is likely to be much lower than an approach that articulates emissions-reduction commitments.[53] The APP has no quantified environmental outcomes and no price-driven incentives for technological innovation. The structure of the APP is similarly diffuse, consisting principally of eight sectoral task forces,[54] which include both public and private representation. The agenda for each task force is defined broadly, leaving considerable room for task force members to define their respective work plans. To date, the outcomes have been non-regulatory, focusing instead on developing industry best environmental practices and moving towards reducing barriers to trade for environmental goods and services.[55]

In addition to the APP, Canada, Mexico, and the U.S. participate in a variety of climate-oriented networks.[56] Many of these have focused on the development and implementation of new technologies, particularly in the energy sector. None of these organizations is intended to develop binding rules; although, like the APP, some have produced guidelines and seek to identify best practices. These groups often constitute both public and private sector representatives, as well as civil society organizations. Participation in climate-oriented networks includes both developed and developing states, but there are few formal avenues for technology transfer or direct-project financing in developing states.

51. The APP is best understood as a form of trans-governmental networked governance. For a discussion of trans-governmental networks, see generally Anne-Marie Slaughter & David Zaring, *Networking Goes International: An Update*, 2 ANN. REV. OF L. & SOC. SCI. 211 (2006).

52. Only Japan and Canada have emissions-reduction obligations under Kyoto.

53. The relationship between participation and strictness of rules is considered in George Downs et al., *Is the Good News About Compliance Good News and Cooperation?*, 50 INT'L ORG. 379 (1996).

54. The sectoral task forces include: Aluminum, Buildings and Appliances, Cement, Cleaner Fossil Energy, Coal Mining, Power Generation and Transmission, Renewable Energy & Distributed Generation, and Steel. *APP Public-Private Sector Task Forces*, http://www.asiapacificpartnership.org/english/task_forces.aspx (last visited Oct. 28, 2009).

55. For example, appliance-testing harmonization, enhancing production processes, developing sector-related benchmark and performance assessments, identifying current reclamation activities in partner countries, and enhancing synergy among task force objectives. *See id.*

56. See *infra* Appendix 1 for list and description.

While all of these initiatives address aspects of the climate-change issue, there is very little evidence that states are concerned with integrating these various initiatives. Indeed, the informal and decentralized structure of this form of governance makes integration more difficult.

In North America, the structure of regional cooperative efforts is similarly diffuse. The most institutionalized set of commitments regarding the environment is found in the North American Agreement on Environmental Cooperation (NAAEC), the so-called NAFTA environmental side agreement.[57] The NAAEC creates the North American Commission on Environmental Cooperation (CEC), which is governed by a Council consisting of the environment minister from each state.[58] It also has a permanent secretariat and opportunities for civic engagement.[59] Despite having a broad mandate to improve environmental quality,[60] the Council has only been engaged in climate-change policy in limited ways.[61] In 1995, the Council adopted a Statement of Intent to Cooperate on Climate Change and Joint Implementation, which set out a number of areas of cooperation for the states to pursue, including joint pursuit of GHG-mitigation technologies, conservation and enhancement of carbon sinks, improving GHG-emission inventory-and-forecasting methodologies, and climate-change research.[62] Significantly, the Statement of Intent specifically references the UNFCCC, including the common but differentiated responsibilities of the parties and the reference to "joint implementation."[63] The Statement of Intent appears only to have resulted in a small number of joint projects.[64] There has been no specific mention of climate change in the Council Ministerial Statements or Communiqués since an indication in 1998 that the Parties would work together under the framework of the Kyoto Protocol to develop North American opportunities for the CDM, which did not happen. More recent

57. *See generally* North American Agreement on Environmental Cooperation, U.S.-Can.-Mex., *done* Sept. 9-14, 1993, 32 I.L.M. 1480 [hereinafter NAAEC].

58. *Id.* at arts. 8-9.

59. The structure of the CEC includes the Joint Public Advisory Committee, *Id.* at art. 16, and allows for citizen-initiated reviews of enforcement failures.

60. *See generally* NAAEC, *supra* note 57.

61. *See generally* Michele Betsill, *Regional Governance of Global Climate Change: The North American Commission for Environmental Cooperation*, 7 GLOBAL ENVTL. POL. 2 (2007). Among the types of involvement are publication of educational materials on climate change and awarding of modest grants to projects aimed at emissions reductions.

62. Commission for Environmental Cooperation [CEC], *Statement of Intent to Cooperate on Climate Change and Joint Implementation*, at § III, Council Res. No. 95-6 (Oct. 13, 1995), *available at* http://www.cec.org/pubs_docs/documents/index.cfm?ID=149&varlan=english.

63. *See generally id*.

64. Early projects supported by the CEC under this mandate included reforestation and renewable-energy initiatives in Mexico, in partnership with the U.S. private sector.

communiqués focus on air pollution, renewable energy, green building, and chemical pollutants; while these issues bear on climate change, they do not directly implement climate-change policy.[65]

Michelle Betsill concludes that the "potential benefits of situating a North America climate governance system in the CEC are limited."[66] In essence, Betsill argues that the linkages between climate change and environmental issues in which the CEC has traditionally been involved, such as air quality, are unlikely to result in a robust climate-change regime. Institutionally, the CEC has been hampered by its intergovernmental structure, which requires consensus among the three participants to move any issue forward.[67] The CEC's inactivity on climate change reflects the lack of willingness of the Parties to engage one another on climate-change issues. This situation may improve given the greater recognition by the Parties that aggressive GHG mitigation is required. The other potential handicap that the CEC labors under is that its governance structure feeds solely into environment ministries, but solutions will require involvement from other ministries, particularly in the energy and natural resources area.

The other potential vehicle for regional climate-change cooperation is the North American Security and Prosperity Partnership (SPP).[68] The SPP is a form of trans-governmental networked governance.[69] The SPP has no foundational treaty, nor does it have any permanent institutions. Instead, the SPP is an agenda of bilateral and trilateral regulatory initiatives aimed at promoting regional security and regional prosperity.[70] The work program is undertaken by a series of working groups established under the SPP, including an environmental working group and an energy

65. For example, Council Resolution No. 01-05 addresses the development of common methodologies for emissions inventories and forecasts with passing reference to the UNFCCC. CEC, *Promoting Comparability of Air Emissions Inventories*, at Nos. 1, 4, Council Res. No. 01-05 (June 29, 2001), *available at* http://www.cec.org/pubs_docs/documents/index.cfm?ID=522&varlan=english.

66. Betsill, *supra* note 61, at 21.

67. NAAEC, *supra* note 57, at art. 9(6).

68. As of August 2009, the SPP is no longer an active initiative. *See* http://www.spp.org.

69. Neil Craik & Joseph DiMento, *Environmental Cooperation in the (Partially) Disaggregated State: Lessons from the Security and Prosperity Partnership of North America*, 8 CHI. J. INT'L. L. 479, 492 (2008).

70. Security and Prosperity Partnership of North America [SPP], Prosperity Agenda, http://www.spp.gov/prosperity_agenda/index.asp?dName=prosperity_agenda (last visited Oct. 28, 2009); SPP, Security Agenda, http://www.spp.gov/security_agenda/index.asp?dName=security_agenda (last visited Oct. 29, 2009).

working group. The working groups, consistent with the SPP's trans-governmental form, are made up of government officials. Climate-change law and policy in the SPP has been noticeable only in its absence.[71] Some of the agenda items focus on clean-energy and energy-efficiency measures,[72] but there has been no overall intention to use the SPP to address climate change in a comprehensive manner. However, after the most recent Leaders Meeting, the joint statement included the following reference to climate change:

> We reiterate our support for the Bali Action Plan and stress the urgency of reaching agreement to ensure the full, effective and sustained implementation of the U.N. Framework Convention on Climate Change now, up to and beyond 2012. We believe that the Major Economies Leaders Meeting should make a contribution to that outcome. All should redouble efforts to address climate change and to establish nationally appropriate programs and goals to be reflected in binding international commitments based on the principle of common but differentiated responsibilities and respective capabilities, to contribute to ensuring global greenhouse gas emission reductions, adaptation measures, energy security, and sustainable development. We are determined to work together to further explore regional cooperation in climate change efforts, including, but not limited to, advancing innovative and suitable clean energy technologies, building the capacity to adopt and deploy them and developing appropriate financial and technical instruments. We reaffirm our shared conviction that increased trade in environmental goods, services, and technologies can have a positive impact on global climate change efforts and encourage the removal of barriers to such trade.[73]

This statement is of note for several reasons. First, it reiterates the commitment of the leaders to address climate change through international negotiation in accordance with the underlying principles of the UNFCCC, including the principle of common but differentiated responsibilities. Second, it acknowledges the potential for regional cooperation to address climate change. Third, it indicates that such cooperative efforts may focus on promoting technological innovation and capacity-building. Finally, the Joint Statement also includes a reference to "energy security," a matter of increasing domestic

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71. For example, an influential background report prepared by the Council on Foreign Relations does discuss climate change as part of a broader North American resource strategy. *See* JOHN P. MANLEY ET AL., BUILDING A NORTH AMERICAN COMMUNITY 15-18 (2005), *available at* http://www.cfr.org/publication/8102/building_a_north_american_community.html.

72. *See* SPP, The Energy Working Group, http://www.spp-psp.gc.ca/eic/site/spp-psp.nsf/eng/00045.html (last visited Oct. 28, 2009); *see also* Agreement Among the Government of Canada, the Government of the United Mexican States and the Government of the U.S. of America for the Cooperation in Energy Science and Technology, U.S.-Can.-Mex., art. 3, July 23, 2007, http://www.spp-psp.gc.ca/eic/site/spp-psp.nsf/vwapj/energy.pdf/$file/energy.pdf.

73. Prime Minister of Canada, Joint Statement by President Bush, President Calderon, Prime Minister Harper—North American Leaders' Summit (Apr. 22, 2008), http://pm.gc.ca/eng/media.asp?category=3&id=2074.

importance in the U.S. The deliberate inclusion of energy security (and the specific reference to the Major Economies Leaders Meeting), within a statement on climate policy, ties the regional process to the broader issue of energy security and to the approach adopted at the Major Economies Leaders Meeting.[74] This approach is also consistent with that advocated by an independent task force on North American integration, which ties climate change to a regional resource strategy.[75]

Finally, the U.S. and Mexico have developed a number of bilateral climate-change projects under the auspices of the USAID Global Climate Change Program. The funding is largely project based and has focused on land-use improvements and clean-energy production.[76] Canada and Mexico also signed a Joint Statement on Climate Change Cooperation at the United Nations Climate Change Conference in Montreal on December 8, 2005.[77] In February 2009, Canada and the U.S. agreed to a "Clean Energy Dialogue," which promotes cooperation in the research and development of clean-energy technologies.[78]

C. Domestic Policies[79]

Appendix II summarizes the prevailing domestic policies of the federal governments in Canada, Mexico, and the U.S. In each of these countries, sub-national governments have important constitutional controls over the environment and natural resources. Consequently, sub-national governments are increasingly becoming an important source of domestic climate change policy. The respective roles of federal and sub-national governments continue to evolve, but there is increasing evidence

74. *Cf.* Bodansky, *supra* note 12, at 64.

75. JOHN P. MANLEY ET AL., *supra* note 71, at 18 ("A North American energy and emissions regime could offer a regional alternative to Kyoto that includes all three countries.").

76. U.S. AGENCY FOR INT'L DEV. [USAID], USAID'S GLOBAL CLIMATE CHANGE PROGRAM (2006), *available at* http://www.usaid.gov/our_work/environment/climate/docs/brochures/gcc.pdf.

77. News Release, Env't Can., Can.-Mex. Sign Joint Agreement on Climate Change Cooperation During the United Nations Climate Change Conference in Can. (Dec. 8, 2005), *available at*. http://www.ec.gc.ca/media_archive/press/2005/051208-4_n_e.htm.

78. Press Release, White House, Office of the Press Sec'y, President Obama and Prime Minister Harper Vow Joint Effort on N. Am. Econ. Recovery (Feb. 19, 2009), *available at* http://pm.gc.ca/eng/media.asp?id=2433.

79. The discussion of Canadian domestic policy in this section draws from Neil Craik, *Segnali contraddittori: evoluzione della politica climatica canadese*, 3-4 RIVISTA GIURIDICA DELL'AMBIENTE 695 (2008) (Italy).

that sub-national governments are not willing to leave transnational cooperation in the hands of their respective federal governments and are entering into trans-boundary cooperative arrangements with one another.

As Table 1 indicates, neither Canada nor the U.S. has come close to achieving its Kyoto commitments. Indeed, emissions have risen steadily since the 1990 baseline. A less ambitious approach is currently taken in the domestic climate change policies of both states. For its part, Canada has indicated a GHG emission reduction target of 20% from its 2006 emission levels by the year 2020. This amounts to projected emissions of 600 Mt in 2020—an amount that is still higher than Canada's 1990 emission levels. In the longer term, Canada has indicated a willingness to reduce its GHG emissions by 60% to 70% by 2050 based on a 2006 baseline.[80] The only quantified emission target the U.S. government has officially adopted is an 18% reduction in GHG intensity levels from 2002 levels by 2012. However, the Obama administration has indicated a commitment returning to 1990 levels by 2020, in addition to its 80% reduction by 2050.[81] Mexico has not adopted legislated reduction targets as such, but it has indicated that it has the potential to reduce its emissions by more than 140 Mt by 2014.[82] As noted, Mexico has also indicated its willingness to reduce its emission by 50% by 2050, but Mexico is careful to qualify its pledge by indicating that its success in achieving these reductions is conditional upon receiving financial and technical assistance.[83]

The emission-reduction targets announced are not strongly science-driven in the sense that they were arrived at by first determining the reductions that need to be achieved to stabilize GHGs at safe levels. There is growing scientific consensus that in order to keep global temperature rises from exceeding 2ºC from pre-industrialization levels, atmospheric levels of GHGs need to be limited to between 450 and 550 ppm CO2e, which in turn would require global emission reductions of 50% of 1990 levels by 2050.[84] The EU has taken note of the scientific

80. This is equivalent to a 40%-52% reduction from 1990 baseline levels.

81. This target is affirmed in the American Clean Energy and Security Act of 2009, S. 311, *supra* note 1.

82. The calculation of a 140 Mt emissions reduction was determined by adding the estimated emissions reduction, as determined by the Mexican government, for each policy goal included in Mexico. *See* INTERSECRETARIAL COMM'N ON CLIMATE CHANGE, ESTADOS UNIDOS MEXICANOS, NATIONAL STRATEGY ON CLIMATE CHANGE 4, 7 (2007) [hereinafter MEXICO NSCC].

83. Holly, *supra* note 2.

84. *Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions: Limiting Global Climate Change to 2 Degrees Celsius: The Way Ahead for 2020 and Beyond*, at 3, COM (2007) 2 final (Jan. 1, 2007) [hereinafter *Communication from the Commission*]; *see* IPCC, *supra* note 30, at 68.

evidence and has specifically linked its reduction targets to achieving the long-term goal of GHG stabilization, with specific reference to limiting climate change to a 2ºC rise.[85] Mexico is the only North American state that appears ready to accept a quantified long-term goal "of an indicative non-binding nature" expressed in terms of GHG concentration levels at 550 ppm CO2e.[86]

The clearest example of the priority given to economic growth in North American climate policy is the use of intensity-based targets by both Canada and the U.S. The Canadian policy has identified sixteen sectors that must reduce their emissions intensity by 18% (from a 2006 baseline) by 2010 and by 2% per year thereafter until 2020, at which time the government has indicated its willingness to move to fixed emission limits.[87] The difficulty is that predictions about absolute future emission levels are dependent upon productivity levels, and absolute levels may still increase if there is strong growth.

Reductions in carbon intensity will be attractive in sectors where intensity levels are high and there exist technological solutions for reducing GHG emissions—for example, where old stock needs to be replaced. However, in order to make significant emission cuts**,** considerable investment will need to be made in research and development of new technologies, particularly in the energy sector.[88] The Canadian reduction targets are based heavily on the development of carbon-capture and storage technology (CCS), which is highly compatible with fossil fuel extraction and production, key sectors in the Canadian economy. CCS allows for the continuing use of coal-fired electrical-generating plants, a predominant form of electrical production in the U.S. In order to provide the needed funding for technological innovation, the Canadian policy foresees the creation of a technology fund in which firms with reduction requirements can make contributions in exchange for credits. The contribution amount starts out very high,

85. *Communication from the Commission*, *supra* note 84.

86. MEXICO NSCC, *supra* note 82, at 14. However, the Obama/Biden campaign materials indicate support for measures to reduce carbon "by the amount scientists say is necessary . . . ." Barack Obama and Joe Biden: New Energy for America, http://www.barackobama.com/pdf/factsheet_energy_speech_080308.pdf (last visited Oct. 29, 2009).

87. MINISTER OF ENV'T, GOV'T OF CAN., TURNING THE CORNER: REGULATORY FRAMEWORK FOR INDUSTRIAL GREENHOUSE GAS EMISSIONS, at iii (2008), *available at* http://www.ec.gc.ca/doc/virage-corner/2008-03/pdf/COM-541_Framework.pdf.

88. Scott Barrett, *A Proposal for a New Climate Change Treaty System*, *in* A GLOBALLY INTEGRATED CLIMATE POLICY FOR CANADA, *supra* note 10, at 315.

allowing for firms to meet 70% of their target through contribution credits in 2010, but falls rapidly to 0% by 2018.[89] The contribution rate has been set at $15/tonne CO2e and will rise with growth in GDP but does not appear to be tied to the market price of carbon emission credit units. The framework also contemplates the generation of credits through offsets, early action, and the use of the Clean Development Mechanism (CDM). The credits generated will be available for domestic inter-firm trading.[90]

Prior to the Obama administration, the U.S. federal climate change policies similarly relied on the development and deployment of new technologies, yet funding for research and development had not been tied to emissions, nor were there opportunities for firms to receive credits for research and development activities. Instead, the U.S. relied on voluntary programs of emission reduction and tax incentives to promote innovation.[91] The reliance on voluntary measures inhibits the development of a carbon market since the price of carbon-emission credit-reduction units will be affected by the demand for reduction created by binding obligations. President Obama has indicated that his administration will implement a national cap-and-trade program.[92] The structure of such a scheme has been laid out in several bills before Congress, most notably in the *American Clean Energy and Security Act*.[93] There is a private carbon exchange in Chicago that relies on voluntary but legally enforceable emission reduction commitments.[94] There is also a carbon exchange operating in Montreal that will trade credits generated under the Canadian regulatory framework.[95] Mexico has indicated a desire to develop price signals for carbon use through the gradual development of an emission trading system.[96]

A fair amount of overlap exists among all three countries in the areas identified for emission reductions. All three countries place some emphasis on the further development of renewable energy supplies and the increased use of combined heat and power plants. All three

89. There are, however, opportunities for more generous credit allowances—up to 100% of a firm's reduction obligation to 2018—for "pre-certified" investments in CCS.

90. *See* MINISTER OF ENV'T, GOV'T OF CAN., *supra* note 87.

91. Hunter, *supra* note 10, at 89-90.

92. Organizing for America: New Energy For America, http://my.barackobama.com/page/content/newenergy_more#emissions (last visited Oct. 29, 2009).

93. American Clean Energy and Security Act of 2009, H.R. 2454, 11th Cong. § 311 (2009).

94. Chicago Climate Exchange, http://www.chicagoclimatex.com (last visited Nov. 1, 2009).

95. Montreal Climate Exchange, Canadian Carbon Market, http://www.mcex.ca/aboutGhg_canCarbonMarket_en (last visited Oct. 29, 2009).

96. Holly, *supra* note 2.

countries also address improving energy efficiency and fuel efficiency for vehicles, but, again, the approach is to promote improvements largely through voluntary policies, not regulation. The Mexican plan emphasizes land-use issues, which receive little attention in Canadian and U.S. policies. Similarly, adaptation is largely ignored in Canada and the U.S., but forms an important part of the Mexican policy strategy.

In the U.S., the absence of a strong federal strategy to address climate change has led to sub-national activity, where there has been a greater willingness to accept binding GHG emission reductions. Further programs, such as renewable portfolio standards, state based mandatory fuel efficiency requirements, and intra-state emission trading programs, have accompanied these reduction commitments.[97] In Canada, every province has climate change policies, all of which include specific GHG-reduction targets, most of which are more ambitious than those announced by the federal government.[98] However, Canadian provinces are only now moving to implement their GHG policies into law and have less well-developed mechanisms than those of their sub-national counterparts in the U.S.[99] There remain significant differences between sub-national jurisdictions in North America, with oil- and gas-producing jurisdictions, such as Alberta, being viewed as policy laggards, compared to leaders such as California, New York, and British Columbia. Many North American cities also have GHG-emission-reduction targets and accompanying programs.[100] Municipal level networks not only provide opportunities for cities to exchange information but also serve as forums for cities to make emission-reduction pledges and monitor as well as verify emissions.[101]

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97. Thirty U.S. states have climate action plans. For a description of each, see The Center for Climate Strategies, U.S. Climate Policy Action, http://www.climatestrategies.us (last visited Nov. 2, 2009).

98. *See generally* MINISTER OF ENV'T, GOV'T OF CAN., TURNING THE CORNER: DETAILED EMISSIONS AND ECONOMIC MODELING, at annex 3 (2008), http://www.ec.gc.ca/doc/virage-corner/2008-03/571/Annex3_eng.htm; *see also* COUNCIL OF THE FEDERATION, CLIMATE CHANGE: LEADING PRACTICES BY PROVINCIAL AND TERRITORIAL GOVERNMENTS IN CANADA (2007), *available at* http://www.councilofthefederation.ca/pdfs/CCInventory Aug3_EN.pdf.

99. Rabe, *supra* note 5, at 424; s*ee generally* Carbon Tax Act, 2008 S.B.C., ch. 40 (Can.).

100. City initiatives include the Climate Protection Agreement, U.S. Conference of Mayors, Climate Protection Agreement, http://usmayors.org/climateprotection/agreement.htm (last visited Nov. 1, 2009) and the C40, C40 Cities: Climate Leadership Group, http://www.c40cities.org (last visited Nov. 1, 2009).

101. For example, under the Cities for Climate Protection Program, which includes 166 cities from Canada, 466 from the U.S., and 4 from Mexico, participating cities make

One of the most significant developments at the sub-national level is the growth of sub-regional governance structures, such as the Regional Greenhouse Gas Initiative (RGGI) and the Western Climate Initiative (WCI). Not only are sub-regional initiatives identifying targets and providing forums for voluntary coordination, but they are also creating more institutionalized governance structures, such as cap-and-trade programs.[102] Sub-regional initiatives are now expanding transnationally and are actively exploring opportunities to integrate their own activities with other groups, including linking trading programs. The WCI framework includes participants and observers from Canada and Mexico, and the Draft design of the Regional Cap-and-Trade Program specifically allows for offset programs located in Canada, the U.S., or Mexico to be certified for use within WCI jurisdictions. One challenge to the continued expansion of these sub-regional initiatives is the respective constitutional constraints placed on sub-state governments to engage in foreign relations and to build sub-regional institutions.[103]

IV. PROSPECTS FOR NORTH AMERICAN REGIONAL COOPERATION

A. Why Regionalism?

Climate change is a global problem. North American states cannot, without the cooperation of other major GHG emitter states, solve it. North American emissions make up approximately 23% of the global total emissions, with that relative share decreasing as developing states with higher rates of emissions growth increase their contributions to global totals.[104] Thus, any GHG-mitigation measures undertaken on a regional basis will be insufficient. In light of the global nature of the climate-change problem, why might regional solutions be attractive?

First, there exist some associated problems arising from climate change that have regional level consequences. There will, for example,

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reduction pledges, develop a local plan to achieve those targets, and monitor the results. *See* ICLEI-Local Governments for Sustainability, Cities for Climate Protection, http://www.iclei.org/index.php?id=800 (last visited Nov. 1, 2009).

102. *See, e.g.*, WESTERN CLIMATE INITIATIVE, DESIGN RECOMMENDATIONS FOR THE WCI REGIONAL CAP-AND-TRADE PROGRAM (2008), http://www.westernclimateinitiative.org/component/remository/func-startdown/14.

103. *See generally* Douglas Kysar & Bernadette Meyer, *Like a Nation State*, 55 UCLA L. REV. 1621 (2008) (discussing constitutional challenges to state-based climate policies in the U.S.); Erwin Chemerinsky et al., *California, Climate Change, and the Constitution*, 24 ENVTL. F. 4 (2008).

104. *See supra* Table 1. For a discussion of GHG emission trends, see generally KEVIN BAUMERT, TIMOTHY HERZOG & JONATHAN PERSHING, NAVIGATING THE NUMBERS: GREENHOUSE GAS DATA AND INTERNATIONAL CLIMATE POLICY 11-16 (2005), *available at* http://pdf.wri.org/navigating_numbers.pdf.

be ecosystem impacts that transcend national boundaries. In the North American context, shared freshwater resources, including ground water resources, are predicted to become further stressed by climate change, requiring heightened trans-boundary management.[105] Climate change may also impact the ranges of species within a region, leading to conservation concerns and increased opportunities for invasive species proliferation.[106] In these areas, North American countries are already cooperating on a bi-lateral and tri-lateral basis through institutions such as the International Joint Commission, the International and Boundary Water Commission, and the North American Committee for Wildlife and Ecosystem Conservation and Management. There is increasing scientific evidence that addressing air quality issues alongside climate considerations would be beneficial.[107] For example, some short-lived air pollutants, such as ozone and black carbon (soot), impact climate change. In the U.S., there is increasing pressure on the government to include carbon dioxide as a regulated substance under the *Clean Act Air,* particularly in the aftermath of the U.S. Supreme Court decision in *Massachusetts v. EPA.*[108] The CEC has developed expertise in tracking air pollutants on a regional basis, which already links carbon dioxide regulation with broader air quality concerns.[109] In addition, air quality is also addressed bi-laterally through the *Canada- U.S. Air Quality Agreement*.[110] Betsill notes, with specific reference to climate change and air quality issues, that one of the advantages of regional governance is that it provides opportunities for issue linkages, which in turn may

105. IPCC, *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* 619 (2008).

106. *Id.*; *see* Thomas Homer-Dixon, *Positive Feedbacks, Dynamic Ice Sheets, and the Recarbonization of the Global Fuel Supply: The New Sense of Urgency About Global Warming*, *in* A GLOBALLY INTEGRATED CLIMATE POLICY FOR CANADA 37, 44-45 (Steven Bernstein et al. eds., 2008).

107. *See generally* D. Shindell et al., *Climate Forcing and Air Quality Change Due to Regional Emissions Reductions by Economic Sector*, 8 *ATMOSPHERIC CHEMISTRY & PHYSICS* 7101 (2008), *available at* www.atmos-chem-phys.net/8/7101/2008.

108. Massachusetts v. EPA, 549 U.S. 497, 528-29 (2007) (holding that the EPA does have the authority to regulate GHGs under the Clean Air Act).

109. CEC, *supra* note 65; *see* Betsill, *supra* note 61.

110. Agreement Between the Government of the United States and the Government of Canada on Air Quality, U.S.-Can., Mar. 13, 1991, T.I.A.S. No. 11,783 *reprinted in* 30 I.L.M. 676.

allow for policy issues to gain stronger traction where they are bundled with issues of higher salience.[111]

Second, many of the economic impacts from climate change may also be regional in scope. For example, the economic losses associated with climate-change impacts in Mexico may place additional labor migration pressures on the U.S.[112] Consequently, the U.S. may benefit more by focusing its adaptation efforts on a regional basis, rather than on a global basis. Also, because of considerable economic interdependence, economic losses in one part of North America may have a stronger potential to impact other parts of the region. Thus, while Canada may have low vulnerability to the direct effects of climate change, it nevertheless has a strong interest in ensuring that its economic partners' losses from climate change are minimized.

The high degree of economic integration further militates in favor of regional solutions. In sectors, such as energy and transportation, where compliance with climate-change policies is likely to be significant, there will be pressure for states to maintain sectoral competitiveness.[113] Similarly, in the event of high degrees of asymmetry in climate-change commitments, there may be heightened concerns that firms will locate in jurisdictions with less onerous requirements, referred to as "environmental leakage."[114] Leakage is more likely to occur in areas where capital is mobile and market access is unaffected by relocation to areas with lower regulatory burdens. These conditions favor regional cooperation in North America given the open market access and strong investor protection measures available under NAFTA. There exists a need to study on a sectoral basis whether the gains from shifting GHG-intensive activity to areas with less onerous GHG regulation are sufficient to incur the attendant costs. Competitiveness concerns have influenced U.S. decisions to seek international agreements on other environmental issues. In particular, Beth DeSombre has shown that in a number of instances where the U.S. has been willing to act unilaterally on an

111. Betsill, *supra* note 61, at 14. But note that Betsill remains skeptical of the ability of the CEC to capitalize on these linkages, concluding that "synergies between air quality policies and climate mitigation policies are possible but not assured." *Id.* at 20.

112. *See* NICHOLAS STERN, THE ECONOMICS OF CLIMATE CHANGE 56 (2007), *available at* http://www.hm-treasury.gov.uk/stern_review_report.htm; *see also* Nils Petter Gleditsch et al., Climate Change and Conflict: The Migration Link 1, 6 (May 2007) (unpublished manuscript), *available at* http://www.ipacademy.org/media/pdf/publications/cwc_working_paper_climate_change.pdf.

113. *See generally* Robert Page, *Kyoto and Emissions Trading: Challenges for the NAFTA Family*, 28 CAN.-U.S. L.J. 55, 56 (2002).

114. See discussion of "leakage" in SCOTT BARRETT, ENVIRONMENT AND STATECRAFT 383 (2003). The extent of economic leakage requires careful empirical analysis, as firm location is determined by a variety of factors unrelated to the extent of regulatory burden.

environmental issue, affected industry groups seek internalization of that issue in order to maintain competitive parity.[115]

A further advantage to regional climate-change cooperation is that it is likely to provide greater opportunities for cost-effective reductions. The most prominent examples of this are both the use of emissions trading and joint implementation, which are means to increase cost effectiveness on a regional (Europe) and sub-regional (RGGI and WCI) basis. While there exists at present no national emissions-trading systems, both the U.S. and Canada are preparing to launch national cap-and-trade systems. The sub-regional systems are anticipated to operate on a transnational basis. Canadian policies anticipate the creation of tradable credits, as does the Mexican policy. Both Canada and Mexico have had experience with using international credits under the CDM, and Canada continues to rely on CDM-type credits into the future. In the event that Canada does not agree to continue within the Kyoto framework, there will be a demand for an alternative mechanism to generate credits.

A necessary condition for establishing market mechanisms to trade emission credits is a robust system of GHG emission-tracking in order to ensure that credits granted are genuine reductions and permanent in nature. Strong emissions inventory capacity will also facilitate the integration of multiple crediting systems, which permits different regional actors to pursue a variety of approaches while allowing flexibility through trading. As an example, the WCI draft trading regime anticipates developing rules for the incorporation of British Columbia's carbon tax into its system of credits.[116] In this regard, North America is well positioned as a region because each country has well-developed capacities in emission calculation and inventory tracking. The GHG inventories are all based on UNFCCC methodologies and should be compatible.

Integrated carbon markets on a regional scale may offer less flexibility than global markets. However, regional transaction costs can make the development of smaller markets, which may be linked to other markets in the future, a preferable strategy. There is some evidence that this is in fact the preferred direction of North American states. Mexico's description of the development of its domestic carbon market indicates a progressive movement from a price-controlled system to one that is

115. ELIZABETH R. DESOMBRE, DOMESTIC SOURCES OF INTERNATIONAL ENVIRONMENTAL POLICY 42, 43 (2000).
116. *Id.*

eventually integrated with international markets. Canada also appears set to use centrally controlled carbon prices (to determine a firm's contribution rate to the technology fund, as an alternative to mandated reductions) with future integration. The Canadian offset system does not now allow for the use of offsets or allowances from projects outside Canada,[117] but cooperative efforts could provide opportunities for regional offsets. For example, the proposed structure of the WCI cap-and-trade program allows for up to 49% (per regulated entity) of a reduction obligation to be satisfied by offsets or allowances from other systems, so long as those projects are subject to "comparably rigorous oversight,"[118] possibly a task that can be designated to an existing institution. In response to the announcement by the U.S. administration that the U.S. would seek to implement a national cap-and-trade program, Canada has actively sought to negotiate a continental emission trading agreement with the U.S. and Mexico.[119]

A final factor that militates in favor of regional climate-change cooperation is the presence of pre-existing governance institutions, both formal and informal. Regional environmental governance in North America is weak. There are few regional environmental institutions, and those that exist do not operate autonomously from national governments. The most prominent among these is the CEC. However, the CEC at this time is not well suited as a forum for climate governance because the Council is made up exclusively of environment ministers. In each of the three North American states, climate-change policy is not the exclusive responsibility of environment ministries, and there has been a considerable amount of inter-ministry competition over climate change.[120] It is unlikely that national governments will confer significant climate-change policy functions upon the CEC.[121] However, the CEC may play a more invigorated role in coordinating research activity, particularly in

117. MINISTER OF ENV'T, GOV'T OF CAN., TURNING THE CORNER: CANADA'S OFFSET SYSTEM FOR GREENHOUSE GASES 13 (2008), *available at* http://dsp-psd.pwgsc.gc.ca/collection_2009/ec/En84-42-4-2008E.pdf.

118. *See* WESTERN CLIMATE INITIATIVE, *supra* note 102, at 10-11.

119. MICHAËLLE JEAN, PROTECTING CANADA'S FUTURE: SPEECH FROM THE THRONE 11 (2008), *available at* http://www.sft-ddt.gc.ca/grfx/docs/sftddt-e.pdf; *see* Alexander Panetta & Steve Rennie, *Canada to Seek Climate Deal with Obama*, GLOBE & MAIL (Toronto), Nov. 5, 2008.

120. Simone Pulver, *Climate Politics in Mexico in a North American Perspective*, *in* CLIMATE CHANGE POLITICS IN NORTH AMERICA: THE STATE OF PLAY 49, 58 (Henrik Selen & Stacy D. VanDeveer eds., 2006) *available at* http://www.wilsoncenter.org/topics/pubs/CI_OccPaper_ClimateChange3.pdf; Stephen Bernstein, *International Institutions and the Framing of Domestic Policies: The Kyoto Protocol and Canada's Response to Climate Change*, 35 POL'Y SCI. 203, 215 (2002).

121. For a discussion of the CEC as a forum for emissions trading, see generally Betsill, *supra* note 61.

areas where it already has developed expertise, such as in environmental impacts from trade.[122] In many ways, the CEC is an anomalous institution in North America, where the preference has been to resolve environmental concerns bi-laterally and without the creation of institutions. In those instances where institutions have been created, such as the International Joint Commission, a preference remains not to delegate policy making and dispute resolution functions to international bodies.[123]

The SPP provides an alternative forum and model for regional cooperation; one that is more decentralized and sectorally driven. If the Joint Leaders statement from New Orleans (quoted above) is an indication of the kind of cooperative measures that might be undertaken through the SPP, then one would expect cooperative efforts to be discrete and conducted with little attention to broader integration. For example, the Energy Working Group's agenda includes matters relating to climate change, such as enhanced research and development cooperation on clean technologies and energy efficiency. Yet, it also includes measures to increase oil sands production (presumably as a matter of energy security).[124] To date, the outcomes of the SPP process relating to clean energy have been modest; however, in 2007, the three governments did enter into an agreement on clean energy research and development cooperation.[125]

The forms of cooperation under the SPP to date suggest that it may be ill suited as a governance structure for comprehensive climate change

122. For example, under Article 13 of the NAAEC, the Secretariat may initiate reports on a broad range of environmental matters. NAAEC, *supra* note 57, at art. 13. To date, the Secretariat has produced reports on matters relevant to climate policy such as continental electricity cooperation and green building standards. CEC SECRETARIAT, ENVIRONMENTAL CHALLENGES AND OPPORTUNITIES OF THE EVOLVING NORTH AMERICAN ELECTRICITY MARKET (2002), *available at* http://www.cec.org/programs_projects/index_programs.cfm?programId=5&varlan=english; CEC SECRETARIAT, GREEN BUILDING IN NORTH AMERICA, *available at* http://www.cec.org/programs_projects/index_programs.cfm?programId=5&varlan=english.

123. *See generally* Jutta Brunnée & Stephen Toope, *Freshwater Regimes: The Mandate of the International Joint Commission*, 15 ARIZ. J. INT'L & COMP. L. 273 (1998).

124. *See generally* SPP, THE OIL SANDS WORKSHOP SPP REPORT (2006), *available at* http://fossil.energy.gov/programs/oilgas/publications/oilgas_generalpubs/oilsands_spp_report_2.pdf.

125. Agreement Among the Government of Canada, the Government of the United Mexican States, and the Government of the United States of America for Cooperation in Energy Science and Technology, U.S.-Can.-Mex., July 23, 2007, http://www.sener.gob.mx/webSener/res/473/AGREEMENT%20CANADA%20MEXICO%20USA.pdf.

regulation. Debora VanNijnatten argues that the environmental objectives of the SPP are insufficiently linked with the broader economic agenda of the SPP, creating barriers to comprehensive and sustainable decision-making.[126] The economic bias of the SPP is also evidenced in the privileged position that business and industry leaders are given within the broader SPP structure through the North American Competitiveness Council, which provides guidance directly to the ministers responsible for the SPP agenda. There is no comparable avenue of consultation for civil society groups.[127] The result is that the SPP suffers from a considerable legitimacy deficit. A potential structural advantage of the SPP is that the process has been subject to strong executive oversight, which allows for regional priorities to be set and for central governments to consider the broader implications of sectoral initiatives. It also provides opportunities for central governments to better integrate climate policies across different sectors.

At more informal levels, strong institutional connections exist among the three American states addressing climate change. As indicated in Table 1, Canada, Mexico, and the U.S. participate in a significant number of common initiatives internationally, many of which are structured as loose networks set up for the purpose of exchanging information. There are increasing examples of sub-national environmental cooperation, such as the New England Governors—Eastern Canadian Premiers, which established a climate change action plan in 2001, the Midwestern Regional Greenhouse Gas Reduction Accord, established in 2007, and the WCI, which expanded to include Canadian provinces. Outside the climate change area, there are examples of multi-level governance structures. For example, the Canada U.S. Air Quality Committee, a bi-lateral committee created to implement the *Canada-U.S. Air Quality Agreement*, comprises both federal officials and officials from several border states and provinces.[128] On the U.S.–Mexico border, there has been a long history of environmental cooperation through the 1983 La Paz Agreement,[129] the Border Environment Cooperation Commission,[130]

126. Debora VanNijnatten, *The Security and Prosperity Agreement as an Indicator Species for the Emerging North American Environmental Regime*, 35 POL. & POL'Y 664, 670-73 (2007).

127. Craik & DiMento, *supra* note 69, at 493-94.

128. Agreement Between the Government of the United States and the Government of Canada on Air Quality, *supra* note 100, at art. VIII.

129. Agreement to Cooperate in the Solution of Environmental Problems in the Border Area, U.S.-Mex., Aug. 14, 1983, 22 I.L.M. 1025.

130. Agreement Concerning the Establishment of a Border Environment Cooperation Commission and a North American Development Bank, U.S.-Mex., Nov. 16, 1993, 32 I.L.M. 1545; *see* Welcome: Border Environment Cooperation Commission, http://www.cocef.org/ingles.php (last visited Nov. 2, 2009).

and joint projects between federal environmental regulators, such as Border 2012.[131] The result is a dense web of overlapping policy initiatives and a growing network of officials familiar with climate change initiatives and broader sustainability agendas within North America. This, in turn, improves opportunities for policy diffusion and allows bureaucrats to exercise influence over the broader policy agenda by linking initiatives.[132] Many of these initiatives have a regional or sub-regional orientation, so there is likely to be a path dependant bias in favor of continuing these arrangements on the same scale, with opportunities for incremental enlargement. This appears to be the trajectory of the sub-regional climate change initiatives.

Regional cooperation allows for like-minded states to maximize their depth of cooperation, where agreement cannot be met on a global level. Europe, for example, has adopted regional commitments to reduce GHG emissions in the absence of, but clearly in the hope of affecting, broader global commitments on deeper, economy-wide reductions. A similar dynamic is evident in the sub-regional cooperation in the U.S., where some states have developed cooperative institutions in the absence of agreement at the national level. In North America, the most striking commonality, at least between Canada and the U.S., is the move away from the short-term, fixed, economy-wide emission reduction commitments found in the Kyoto Protocol, while still accepting long-term targets and the broader global objectives and principles found in the UNFCCC. The levels of commitment that Canada and the U.S. are prepared to agree to, particularly in the short and medium term, are similar, in that both countries prefer shallow reduction commitments deepening over time. There is a strong premium on economic certainty in both countries, as demonstrated by the preference for intensity-based targets. Mexico maintains a commitment to the principle of differentiated responsibilities, but nevertheless appears to be prepared to identify emission reduction targets. Canada and the U.S. have repeatedly affirmed their own commitment to this principle, but have insisted that major developing economies take some steps towards reduction, which is consistent with the Mexican position.

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131. *See* EPA, U.S.-Mexico Border 2012, http://www.epa.gov/Border2012 (last visited Nov. 2, 2009).

132. *See generally* Henrik Selin & Stacy VanDeveer, Climate Leadership in Northeast North America (May 18, 2006), http://wilsoncenter.org/events/docs/papervan deveer1.pdf; *see also* ANNE-MARIE SLAUGHTER, A NEW WORLD ORDER 172-77 (2004).

B. Likely Characteristics of North American Climate Change Governance

Flowing from this discussion, there are a number of characteristics that North American climate change governance structures are likely to exhibit. First, the approach taken to climate regulation is likely to be "bottom-up" in the sense that individual jurisdictions, at both the federal and sub-national levels, will put forward commitments based on their particular circumstances.[133] Regional initiatives will be directed at coordinating those efforts by promoting comparability of emissions, sharing expertise, and enhancing the efficiency of emissions reduction through market mechanisms. A bottom-up approach suggests that North American climate policy will be more focused on implementation than commitment creation. A bottom-up approach does not necessarily mean that national governments will not agree to binding emission-reduction targets, but these are more likely to occur in the context of multi-lateral negotiations. The absence of hierarchical regional governance structures strongly militates against binding regional commitments or highly institutionalized approaches to implementation at the regional level, such as those that exist in the EU. Unlike the EU, there are no institutions that would provide compliance or dispute settlement functions, and such institutions are not likely to develop.[134]

Bottom-up approaches will be better able to account for the division of legislative authority over climate change that exists in North America and will allow existing sub-regional initiatives to develop. In Canada, the federal climate-change policy has been developed so as to co-exist with provincial initiatives. The U.S. federal government has not, to date, sought to play a coordinating role among states, and there are some indications that increased federal oversight of climate policy will result in the pre-emption of some state-based initiatives. But draft legislation appears to maintain a role for state programs.[135] A bottom-up approach may also appeal to the Mexican government, which appears set to define

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133. "Bottom-up" approaches are described and advocated by David G. Victor, *Fragmented Carbon Markets and Reluctant Nations: Implications for the Design of Effective Architectures*, *in* ARCHITECTURES FOR AGREEMENT: ADDRESSING GLOBAL CLIMATE CHANGE IN THE POST-KYOTO WORLD 133, 139-40, 151 (Joseph Aldy & Robert Stavins eds., 2007) and Scott Barrett, *A Multi Track Climate Treaty System*, *in* ARCHITECTURES FOR AGREEMENT: ADDRESSING GLOBAL CLIMATE CHANGE IN THE POST-KYOTO WORLD, *supra*, at 237, 240-41.

134. Even in the highly legalized area of North American trade law, the preference has been not to create permanent dispute-settlement bodies.

135. For example, under the American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 335 (2009), state trading programs, such as those contemplated under RGGI and WCI would be suspended, but other state initiatives are not affected.

reduction targets, even though they will likely be non-binding. Because the degree of environmental policy centralization differs across the North American states, there may also be a need to accommodate different governmental levels within single-governance structures.

A bottom-up strategy also allows for the continued development of multiple approaches to emissions mitigation and adaptation measures. Thus, a second characteristic is that North American climate governance will continue to accommodate multiple approaches, allowing states and sub-national governments to choose those approaches that suit their circumstances. Again, this is already evident within sub-national governments.[136] British Columbia has chosen, for example, to use a carbon tax, while California has enacted carbon dioxide limits for motor vehicles, an approach that is less likely to be embraced in jurisdictions with strong automobile-manufacturing sectors.[137] The advantage in allowing for differentiated regional and sub-regional approaches is that jurisdictions and sectors that are policy leaders can be exemplars for policy experimentation, which can provide greater certainty to reluctant jurisdictions or sectors by demonstrating how reductions may be implemented without unacceptable economic impact, leading to diffusion and enlargement.[138]

Among the approaches likely to be adopted is a cap-and-trade system that provides for participation of all three North American states. Following from above, it is less likely that the parties will establish a unitary continental cap-and-trade system. Instead, the architecture is more likely to build on national and sub-regional systems and provide linkage opportunities between systems through inter-system trading and offsets. The caps themselves may be set globally and allocated under national or sub-national rules. Allowing each state to determine the coverage of a cap-and-trade system ensures that states may design their own systems in accordance with the structure of their economy and in light of sub-regional interests. Cooperation would be required in order

136. For a summary of U.S. state climate action plans, see The Center for Climate Strategies, *supra* note 97.

137. For example, Ontario has joined the WCI without accepting the California auto emission requirements. *See* Karen Howlett & Greg Keenan, *Deal Lets Ontario Join Climate-change Drive*, GLOBE & MAIL (Toronto), Aug. 4, 2008, *available at* http://www.unep.org/cpi/briefs/2008Aug05.doc.

138. *See* BARRY G. RABE, SECOND GENERATION CLIMATE POLICIES IN THE AMERICAN STATES: PROLIFERATION, DIFFUSION, AND REGIONALIZATION 20 (2006), http://www.brookings.edu/~/media/Files/rc/papers/2006/08energy_rabe.pdf.

to ensure that inter-jurisdiction credits are verifiable, permanent and additional. Adopting common methodologies for the calculation and verification of credits would be desirable and ought to be more easily achieved on a regional scale. The concerns over CDM credit verification and additionality suggest that systems may be more effectively implemented among parties, where there is a high degree of trust and transparency—[139] conditions that are more apt to arise among regional trading partners that have high levels of existing integration.

A third characteristic of regional climate governance in North America is that it is likely to include sectoral approaches. Sectoral approaches are currently used in both the APP and the SPP**;** as a result, there may be a path dependant bias in favor of these existing networks. Both Canada and Mexico have identified specific sectors for emission reductions.[140] Determining which sectors may be amenable to regional agreements requires further research assessing, *inter alia*, the degree to which the sector operates within a distinct regional market, whether the sector accounts for significant amounts of regional GHGs, the extent to which the sector's capital stock will require renewal, and the ability to reduce emissions costs effectively.[141]

A fourth characteristic is the reliance on research- and development-based approaches. Funding research and development has been a significant part of existing national climate-change policies, both domestically and internationally. Research and development cooperation on a regional scale, as opposed to a global scale, requires special conditions because the major advantage of research cooperation is being able to pool funds from as many countries as possible, with a particular emphasis on including technologically advanced countries. For example, both Canada and the U.S. have a particular interest in developing CCS technology, which may itself be deployed on a regional or sub-regional scale; capture opportunities may not be located near storage opportunities.[142] CCS may also be an example of a technology that has regional political

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139. *See generally* Michael Wara, *Measuring the Clean Development Mechanism's Performance and Potential*, 22 UCLA L. REV. 1759 (2008).

140. On sectoral approaches, with specific reference to Mexico, see generally CTR. FOR CLEAN AIR POL'Y, INTERIM REPORT: SECTORAL APPROACHES: A PATHWAY TO NATIONALLY APPROPRIATE MITIGATION MEASURES (2008), http://www.ccap.org/docs/resources/560/CCAP-sectoral%20interim%20report%20final%20012209.pdf.

141. *See* Bodansky, *supra* note 29, at 9-11.

142. For example, the Weyburn II CO_2 Storage Project collects CO_2 from a coal gasification plant in North Dakota and transports the gas via pipeline to an oilfield in Saskatchewan. *See* IEA Greenhouse and Gas R&D Programme, Project Details, http://www.co2captureandstorage.info/project_specific.php?project_id=140. For a more general discussion of CCS, see generally IPCC, *Special Report on Carbon Dioxide Capture and Storage* (2005), *available at* http://www.ipcc.ch/pdf/special-reports/srccs/srccs_wholereport.pdf.

advantages that favor its development in North America more than elsewhere. In the U.S., CCS would allow for the continued use of coal and in Canada it would allow for the continued development of the oil sands, perhaps satisfying the demands to two powerful sectoral lobbies, both of which have sub-regional power bases.[143] Research and development may be used in conjunction with sectoral approaches that would lead to cooperation on a regional scale. Barrett argues that the benefits from research-based approaches can be better realized where there is standardization allowing participants to take advantage of economies of scale and network effects.[144] Standardization on a regional level, such as renewable portfolio standards, could then be coupled with research and development cooperation, in renewable energy technologies.

Funding for research and development on climate change is unlikely to be centralized at a regional level in the short or medium term. The North American Development Bank, created as part of the U.S.-Mexico Border Environment Cooperation Commission has not yet focused on climate- or energy-related projects.[145] Mexico is a participant in the Inter-American Development Bank that does have a climate-change program,[146] but Canada and the U.S. are not partners in that institution. In the absence of a regional equivalent of the Global Environment Facility, research and development funding is more likely to continue on its current project or sector-based trajectory.[147]

A final point regarding regional climate governance is the critical requirement for integration. Regional climate governance is not an alternative to global solutions but, rather, must be understood chiefly as a scale for implementation. In the case of North America, where there is a high premium placed on short term flexibility, the environmental integrity of such an approach depends upon both vertical integration with multi-lateral commitments and processes as well as horizontal integration across regional and sub-regional programs and policies. In the absence of strong regional institutions, the form of integration is

143. BARRETT, *supra* note 114, at 253, makes this point in relation to coal.
144. Scott Barrett, *supra* note 133, at 251.
145. Agreement Concerning the Establishment of a Border Environment Cooperation Commission and a North American Development Bank, *supra* note 130, at ch. 2.
146. *See* Inter-American Development Bank, Sustainable Energy and Climate Change Initiative, http://www.iadb.org/secci/aboutus.cfm?language=English (last visited Nov. 2, 2009).
147. As seen in the APP, for example.

unlikely to be hierarchical and coercive.[148] Instead, integration efforts will need to focus on comparability and complementarity. Comparability is crucial to promote reciprocity among governance units at various scales. To a large degree, the acceptance of UNFCCC methodologies in emissions inventories and accounting facilitates comparisons between governance units, but, as forms of emissions-regulation proliferate, more program- and project-specific forms of accounting will need to be developed and adopted. For example, the International Organization for Standards provides an important source of GHG accounting and verification tools that could be incorporated into a wide variety of instruments.[149]

The greater challenge for integration in a decentralized regulatory architecture is promoting linkages between various programs. One example of this challenge is the different forms of eligible renewable energy that may form part of a renewable portfolio standard. There remains considerable controversy over the role of large-scale hydro and nuclear energy within renewable portfolios.[150] Ensuring that emissions reduction projects are creditable within various emission trading systems (and ensuring that projects do not get double counted) will also require a high degree of cooperation between market operators.[151] Coordination at the regional level can promote key standards for accounting and for transparency with a view to maximizing the scope of emission trading and other credit-based systems, both within the region and with market instruments outside the region.

V. IMPLICATIONS FOR MEXICO

In many respects, Mexico differs from its North American partners, with different international commitments and a greater emphasis on continued economic development and adaptation. These differences are not, however, incompatible with regional climate governance. On an abstract level, the participation of a developing country in emission reduction initiatives provides an important signal to other developing economies that emission reduction is not incompatible with development

148. For example, the EU is able to aggregate and reallocate individual emissions commitments—the EU bubble—through regional legal instruments.

149. *See* International Organization for Standardization, Hot Topics: Climate Change, http://www.iso.org/iso/hot_topics/hot_topics_climate_change.htm (last visited Nov. 2, 2009).

150. CEC, WHAT IS RENEWABLE?: A SUMMARY OF ELIGIBLE CRITERIA ACROSS 27 RENEWABLE PORTFOLIO STANDARDS (2003), http://www.cec.org/files/pdf/ECONOMY/What-is-Renewable_EN.pdf; s*ee* Ian H. Rowlands, Renewable Electricity Politics Across Borders 64-67 (May 10, 2007), http://www.wilsoncenter.org/events/docs/paperrowlands1.pdf (discussing trade law implications of treating different sources of renewable energy unequally).

151. *See, e.g.*, WCI, *supra* note 102, at 10-11 (stressing rigorous accounting for credits).

goals. Given the U.S. government's strong insistence that other major emitters, such as India and China, need to take steps to reduce their business-as-usual emissions, Mexican involvement ought to be politically attractive.

Symbols aside, regional cooperation will need to provide suitable incentives in order to address Mexico's development and adaptation needs. Important initial steps will be the identification of emissions reduction targets and continued development of national emissions inventory and accounting systems.[152] If Mexico can identify opportunities for efficient reductions, it should be able to attract investment in order to realize those mitigation opportunities. Mexico's current experience with generating CDM credits under the Kyoto Protocol indicates a strong existing capacity, but it will need to build on that to continue to attract those investment funds in a more competitive environment. A regional climate-change framework that provides for the transfer of credit reduction units between countries presents a potential advantage to Mexico. Mexico, as the sole developing country, should be able to attract strong investment from the U.S. and Canada. In the event that Canada no longer continues within the Kyoto framework after 2012, the Canadian government will need to replace the CDM credits currently included in its own GHG reduction plan with an alternative. Mexico would likely want to ensure that a regional system is supplemental to the CDM under Kyoto since Mexico has been able to attract a high proportion of investment under the CDM.[153] Ensuring that North American initiatives use similar methodologies to those accepted under the CDM should help attract investment under both a regional system and under Kyoto. A regional system may provide opportunities for credits in areas such as land-use change, which Mexico has identified as

152. One system that is already recognized internationally as strong is the Climate Change Performance Index, http://www.germanwatch.org/klima/ccpi.htm (last visited Nov. 2, 2009).

153. Mexico has attracted 6.32% of the registered projects under the CDM, an amount only exceeded by China (34.77), India (24.73.%), and Brazil (8.76%). Note these statistics measure only project numbers and not the total amount of certified emission reduction credits. In this latter regard, Mexico has a much smaller share (2.89%) of the global CDM market compared with China and India. UNFCCC, CDC, *Registerd Project Activities by Host Party*, http://cdm.unfccc.int/Statistics/Registration/NumOfRegisteredProjByHostPartiesPieChart.html (last updated June 11, 2009) (last visited Nov. 6, 2009).

being a significant source of net GHG reductions, not currently available for credit under the CDM.

Given their affirmation of common but differentiated responsibilities, Canada and the U.S. are not likely going to insist that Mexico accept binding reduction targets, but "no lose" targets or targets that are linked to increases in GDP or carbon intensity levels may provide opportunities for joint implementation. The acceptance of targets by Mexico may facilitate investment because the presence of targets allows for better demonstration that reductions are real (and not so-called "hot air").[154] One possible option that may make the acceptance of binding targets more feasible for Mexico is the negotiation of some form of side payment. A side payment could be linked to capacity-building, technology acquisition, or adaptation requirements. Negotiating side payments may be easier in a regional context where the case can be made that such payments strengthen the region as a whole. A regional system may be better able to respond to the particular needs of Mexico than strictly within the current global framework that tends to view developing countries in an undifferentiated fashion.

There is no North American equivalent to the Global Environment Facility that provides climate-change project-financing. The individual development agencies in Canada and the U.S. have provided climate-change-related funding. For example, the Canadian International Development Agency has a climate-change development fund and USAID has a similar program.[155] The overlapping mandates of these programs may provide opportunities for regionally focused cooperation.

The decentralized nature of climate-change governance in North America may present some additional challenges in Mexico where state governments and cities are likely to have different capacity levels among one another, as well as lower capacity levels than their North American counterparts.[156] The result may be the development of greater ties between the Mexican federal government and sub-state governments and

154. "Hot air" is the term often given to projects that do not meet the requirement of additionality; that is, that the reductions go beyond business-as-usual reductions.

155. The Canada Climate Change Development Fund is described at Canadian International Development Agency, Canada Climate Change Development Fund, http://www.acdi-cida.gc.ca/acdi-cida/ACDI-CIDA.nsf/eng/home (click "Programs" on the left; then click "Specific Programs" on the left; then click "Canada Climate Change Development Program" on the left) (last visited Nov. 2, 2009). The USAID Global Climate Change Program is described at USAID Environment: Climate Change Program, Overview, http://www.usaid.gov/our_work/environment/climate (last visited Nov. 2, 2009).

156. The exception to this is Mexico City, which has a sophisticated and ambitious climate-change plan. *See* Programa de Acción Climática de la Ciudad de México (last visited Nov. 4, 2009), http://www.df.gob.mx/wb/gdf/programa_de_accion_climatica (last visited Nov. 4, 2009).

sub-regional climate institutions. Another possibility is direct engagement by private sector actors in sub-regional climate programs. For example, many of the current cooperative initiatives are structured around sectoral working groups. These working groups are not currently set up to facilitate capacity-building, and this may hamper their effectiveness. Mexico's ability to link GHG mitigation with development and adaptation will also be impacted by the decentralized structure of climate governance, as sub-national actors in Canada and the U.S. will have different levels of interests in Mexican economic affairs. Decentralized governance may also present opportunities for the Mexican government to develop cooperative arrangements with U.S. states that face similar climate-change impacts, such as increased water stress and impacts from sea level rises.

Thus, for Mexico, the need for integration operates on a variety of levels. In order to maintain the current flow of benefits through the Kyoto mechanisms, Mexico will want to ensure that regional climate-change programs are compatible with international credit-based programs. Horizontal integration is also important because integration of different programs will facilitate issue-linkage, and that may better enable Mexico to leverage its involvement in mitigation measures in order to achieve its other climate-related goals.

VI. CONCLUSION

This paper has sought to examine the potential for regional climate-change governance in North America and to further consider the possible approaches to climate-change regulation that are more likely to be pursued in the short and medium term. Our conclusions suggest that regional climate governance is likely to arise but in a decentralized fashion and oriented more towards implementation than commitment-creation. Unlike Europe, the absence of strong regional institutions and a fragmented system of resource and environment regulation militates against a law-based and hierarchical system of regional climate governance. However, a regional approach may be attractive in those sectors that are highly integrated within the NAFTA trade area, where leakage and competitiveness concerns are higher. The common focus on developing innovative technologies through direct research and development funding provides further opportunities for cooperation.

We are confident that regional cooperation deserves further study and consideration by policy officials in North America. We have identified

several areas that, in our view, require further attention. First, greater consideration needs to be given to the impact that the distribution of legislative authority over key climate-related areas in each state may have on the structure of cooperation. While all three states have a federal structure, the distribution of powers differs from state to state, as does the ability of sub-national actors to engage in cooperative activities within and beyond the state. Second, the contribution of existing regional environmental institutions to climate governance needs to be better understood. New institutions are costly to create, but delegating authority to ill-suited institutions also has costs. There is a need to consider, *inter alia*, the principal actors engaged within the institution, existing levels of expertise in climate change, the kinds of cooperative activities the institution can engage in, and the form of decision-making processes available to the institution. The last point is particularly important because legitimacy questions, which tend to arise as institutions take on more prominent governmental roles, have been raised in relation to existing regional arrangements.[157] Third, methodologies for identifying those sectors that may be amenable to regional climate change cooperation need to be developed and then applied to leading sectoral candidates. We expect that sectoral analysis will be principally an economic undertaking, but there are also important governance-related questions regarding the nature and form of sectoral cooperation. Lastly, further consideration must be given to the governance of integration. A principal form of regional governance may be a form of meta-cooperation, whereby different programs and tracks are linked with one another vertically and horizontally. More ambitious forms of integration may provide greater benefits in terms of efficiency but may conflict with the desire for flexibility.

157. *See generally* Craik & DiMento, *supra* note 69.

APPENDIX 1

	Canada	**U.S.**	**Mexico**
GLOBAL INITIATIVES			
UNFCCC	• Submitting a national inventory of emissions and removals of greenhouse gases. • Implementing national programs to mitigate climate change and adapt to its impacts. • Strengthening scientific and technical research and systematic observation related to the climate system, and promoting the development and diffusion of relevant technologies. • Promoting education programs and public awareness about climate change and its likely effects. • Periodically submitting comprehensive National Communications (i.e., reports) on activities to implement commitments under the Convention. • Developing a national policy and specific commitments. • Assisting developing countries to meet their goals through financial aid, technology transfer and research support.		Same as Canada and the US, however Mexico is NOT required to develop a national policy and specific commitments nor to assist developing countries through financial aid, tech transfer or research support
Kyoto	-6% below 1990 levels by	-7% below 1990 levels	None

Protocol	2008/2012	by 2008/2012 [has not yet ratified Kyoto Protocol so not legally bound by target]	
CDM	Assisting with 22 projects, none with Mexico (11 in South America, 4 in China, 6 in Malaysia and 1 in Egypt)	None	118 projects, most in conjunction with UK and Switzerland, some with Spain and 14 simply Mexico [11 climate change projects approved through GEF]
Bali Action Roadmap	Calls for enhanced action on all of the UNFCCC points from all parties. Indicates final negotiations/decisions will take place at COP-15 in 2009.		
NORTH AMERICAN INITIATIVES			
NAAEC	The NAAEC requires that each Party ensure its laws provide for high levels of environmental protection without lowering standards to attract investment. Each Party agrees to effectively enforce its environmental laws through the use of inspectors, monitoring compliance and pursuing the necessary legal means to seek appropriate remedies for violations. Each Party must also provide a report on the state of its environment, develop environmental emergency preparedness measures, promote environmental education, research and development, assess environmental impacts and promote the use of economic instruments. Parties may also appoint National Advisory Committees composed of private sector representatives to assist in implementing the Agreement domestically. [from NAAEC Canadian Office website: http://www.naaec.gc.ca/eng/agreement/agreement_e.htm]		
SPP	• working towards a joint vision of biofuels for transportation by 2020.		

	• shared information on policies and programs on vehicle fuel efficiency, standby power consumption, and the potential for natural gas to support optimal energy use for the future. • harmonize a number of energy-using consumer products, such as central air conditioners. • new suite of products, including clothes washers and water heaters, are being assessed under the new framework to systematize energy efficiency harmonization between all three countries. • undertook a comprehensive analysis of various emissions inventories among the three countries to prepare a trilateral strategy to achieve comparability. • road tested emissions estimation methodologies for nine energy generating facilities to improve and harmonize emissions calculations in the energy power. • enhance our electricity networks. • collaboration to further reduce barriers to expanding clean energy technologies, especially carbon dioxide capture and storage to mitigate greenhouse gas emissions. • working together to improve the safety of chemicals in the marketplace. [from "Bali Action Plan" down from Orleans meeting; first section from "key accomplishments since 2007"]	
OTHER INTERNATIONAL INITIATIVES		
Asia-Pacific Partnership	• In accordance with our respective national circumstances, develop, deploy and transfer cleaner, more efficient technologies and to meet national pollution reduction, energy security and climate change concerns,	Not a member

	consistent with the principles UNFCCC.
	• Areas for collaboration may include, but not be limited to:
	  • energy efficiency,
	  • clean coal,
	  • integrated gasification combined cycle,
	  • liquefied natural gas,
	  • carbon capture and storage,
	  • combined heat and power,
	  • methane capture and use,
	  • civilian nuclear power,
	  • geothermal, rural/village energy systems,
	  • advanced transportation, building and home construction and operation,
	  • bioenergy,
	  • agriculture and forestry,
	  • hydropower, wind power, solar power, and other renewables.
	• will also cooperate on the development, diffusion, deployment and transfer of longer-term transformational energy technologies that will promote economic growth while enabling significant reductions in greenhouse gas intensities.	

	• Areas for mid- to long-term collaboration may include, but not be limited to:
	  • hydrogen,
	  • nanotechnologies,
	  • advanced biotechnologies,
	  • next-generation nuclear fission,
	  • fusion energy.
	• share experiences in developing and implementing our national sustainable development and energy strategies, and explore opportunities to reduce the greenhouse gas intensities of our economies.
	• non-binding compact in which the elements of this shared vision, as well as the ways and means to implement it, will be further defined.
	• we will consider establishing a framework for the partnership, including institutional and financial arrangements and ways to include other interested and like-minded countries.	

OAS	Resolution adopted by the General Assembly in 2002 to support the CARICOM countries and help their mitigation	

	efforts with respect to climate change. Canada and the US have done so through support for climate change projects in Caribbean. Does not seem to be any focus on climate change outside of the concerns of small island states in the Caribbean.	
G8	No specific targets in G8 action plan: US President Bush did agree economy-wide approach needed to achieve absolute emission reductions [agreed to seriously consider 50% by 2050]. Action Plan included following elements: • Reviewing building codes, appliance standards, and vehicle standards to identify best practices and opportunities for coordination; • Extending the use of labeling on vehicles and appliances to raise consumer awareness of energy consumption; • Encouraging multilateral development banks to expand the use of voluntary energy savings assessments of proposed investments in energy-intensive sectors; explore opportunities to increase investments in renewable energy and energy efficiency technologies; and work with borrower countries to identify less greenhouse gas-intensive growth options. • Inviting the World Bank to develop and implement "best practice" guidelines to	Not a member but participated in summit. Called for stronger action by developed countries and more financial/technical assistance for developing countries.

	assess and manage climate risks associated with new investments in climate-sensitive sectors; • Adopting, where appropriate, market-based policy frameworks to finance the transition to cleaner energy; and • Promoting dialogue on potential policy approaches such as long-term sectoral, national or international policy frameworks; market-based instruments for the development and deployment of technologies; and the trading of credits for greenhouse gas reductions. [All from Pew Centre summary; available on G8 website at: http://www.g8summit.go.jp/eng/doc/doc080714__en.html]	
Washington International Renewable Energy Conference	Wirec 2008 was the third international ministerial level conference on renewable energy. It was hosted in Washington on March 4-6, 2008. Ministers from federal and local governments, industry leaders and civil society representatives met to focus on R&D issues, rural development and financing of renewable energy sources. There was also a focus on sharing best practices. http://www.wirec2008.gov	
Methane to Markets Partnership	21 partners and over 600 private sector and civil society organizations are members. The Partnership's goal is to encourage "waste" methane recovery and to re-use it as a clean energy source. Currently focuses on four areas of	

	methane management: agriculture; coal mines; landfills; and, oil and gas systems. http://www.methanetomarkets.org	
International Partnership for the Hydrogen Economy	17 government members, including the EC, have partnered to improve the development of hydrogen and fuel cells as an alternative clean energy source. Focused on R&D and commercial utilization activities. Founded in 2003. http://www.iphe.net	Not Involved.
Carbon Sequestration Leadership Forum	22 governments partnered since 2003 to develop carbon sequestration and carbon capture techniques for long-term storage and transportation. The group includes six task forces: risk assessment, storage capacity estimation, projects interaction and review, legal issues, capacity-building in emerging economies and financial issues. http://www.cslforum.org	
Group on Earth Observations	Over 70 countries and 40 international organizations participate in GEO. The initiative aims to collect climate change data, general weather and atmospheric data, and other environmental statistics. The partnership helps members coordinate efforts and share information. http://earthobservations.org	
Generation IV International Forum	Partnership of ten countries and Euratom to encourage the development of safer, proliferation-resistant nuclear energy technologies. http://nuclear.energy.gov/GenIV/neGenIV2.html	Not Involved
Global Nuclear Energy Partnership	Canada joined in Nov. 2007. In Sept. 2007, 16 states signed a Statement of Principles to cooperate to develop and	Not Involved

	encourage the use of peaceful nuclear energy technologies http://nuclear.energy.gov/GenIV/neGenIV2.html		
ITER	Not involved	Research project initiated by the US aimed at harnessing the potential of fusion energy. China, Russia, India, Japan, Korea and the EU are also involved. http://www.iter.org	Not involved
Global Bioenergy Partnership	The GBEP Secretariat is managed by the FAO. A combination of country and NGO partners are cooperating to develop cost-effective biofuels and implement them, particularly in developing countries. http://www.globalbioeenergy.org		
Renewable Energy and Energy Efficiency Partnership	Multilateral initiative that aims to develop policy and legal mechanisms that will assist in renewable energy implementation and to facilitate financing for clean energy projects. Also helps to share best practices and energy smart community planning models. The organization is comprised of 8 regional secretariats that include government actors, NGOs, business and development banks. http://www.reeep.org		
Renewable Energy Policy Network for	Global policy network that aims to develop leadership in clean energy technologies. Focuses on policy development at sub-national, national, regional and international levels to encourage the rapid expansion of renewable energy		

the 21st Century	technology use. Neither Canada nor Mexico appears to be directly involved, but UNDP, UNEP and the IEA are all members, as well as the GEF and the World Bank. http://www.ren21.net	
BILATERAL INITIATIVES		
USAID Global Climate Change	NOT INVOLVED IN BILATERAL AGREEMENT	In 2005, U.S. and Mexico agreed to: • Continued cooperation on the Methane to Markets Initiative (M2M). • Technical assistance for the periodic updating of greenhouse gas inventories and development of economic/environmental models to support decision-making; • Cooperation through the Carbon Sequestration Leadership Forum (CSLF) and development of projects in geologic sequestration for consideration by CSLF (including the nomination of the Campo Carmito project for certification by the CSLF); • Cooperation in development of integrated carbon cycle research, building toward coordination through the North American Carbon Program; and

		• A robust program of clean production initiatives, including activities designed to promote energy efficiency and the use of renewable energy. Additionally, the U.S. and Mexico agreed to consider joint projects to: • Engage in public outreach describing U.S.-Mexico cooperation in the area of climate change through a joint brochure reflecting quantifiable projects; • Carry out additional joint planning for the July, 2005 economic-environmental modeling workshop to be held in Mexico City; • Identify ways to move forward in the North American Carbon Program; • Discuss possible future cooperation in the area of biofuels; • Extend existing joint modeling programs and consider economic factors in methane recovery; and • Discuss additional collaborative studies in

			the area of adaptation, such as the recently completed Hermosillo, Sonora study.
Debt-for-Nature Agreements	Canada, the US and a number of European countries have independently initiated debt-for-nature agreements whereby they forgive debt owed to them by developing countries in exchange for the latter undertaking environmental initiatives. Mexico has participated in various debt-for-nature swaps with other governments and international organizations. The US was a global leader in initiating such agreements.		
President's Initiative Against Illegal Logging	Not involved	The US partners with developing countries on a bilateral basis to assist them put a stop to illegal logging. http://www.whitehouse.gov/ceq/iniative_against_illegal_logging. Pdf	Not involved
Public-Private Forest Partnerships	Not involved	Similar to the above initiative, the US partners with developing countries on a bilateral basis to encourage reforestation and sustainable forest management.	Not involved
Clean Energy Initiative	Not involved	US program designed to fund clean energy initiatives in developing countries. Coordinated by USAID.	Not involved
Millennium Challenge Corporation	Not involved	US program designed to link funding for developing nations to increased responsibility for climate change. Indirectly associated with USAID.	Not involved

APPENDIX 2

	Canada	**U.S.**	**Mexico**
Targets	Absolute 20% reduction from 2006 levels by 2020 [this will bring emissions to approx. 600 Mt which is still above 1990 levels]. Turning the Corner (http://www.ec.gc.ca/default.asp?lang=En&n=75038EBC-1).	Cut GHG intensity by 18% by 2012 [announced as goal in 2002]. U.S. Action to Address Energy Security, Clean Development and Climate Change (http://www.state.gov/g/oes/rls/or/97380.htm).	National target to be set in 2008. Special program on cc. Focus on establishing performance standards, reporting emissions and doing economic assessments. National Climate Change Strategy (http://www.semarnat.gob.mx/queessemarnat/politica_ambiental/cambioclimatico/Pages/estrategia.aspx).
Industry Goals	Reduce emissions by 165 Mt from projected levels by 2020. 50% decrease in HFCs by 2020. Regs for GHG emissions apply to 16 sectors. Credit program for early action	Direct carbon intensity reduction of 53% from 1990 levels by 2010. Reduce HFCs by 50% and improve fuel efficiency by 30%. Reduce PFCs by 10% below 1995 baseline by 2010. Eliminate SF6	Develop the combined heat and power potential of the national cement, steel and sugar industries. Eliminate subsidies for fossil fuel energy consumption and production. Implement compulsory and voluntary standardization of equipment, vehicles,

	(prior to 2006) and offset program for projects post Jan. 1, 2008. Firms may contribute to a technology fund as a means of compliance for the 2010-2017 period, subject to limits. A further 5 Mt/year of credits will be available through the research and development component. Technology fund will take a portfolio approach to investment in a range of deployment and development projects. Fund will seek ownership of resulting emission reductions based on project cost	emissions by 200. Tax incentives from 2005 to 2015 for reduction of GHG emissions.	power generation systems and consumption in homes, offices and industry.

Oil and Coal	Mandatory emissions reductions in 2010 and getting tougher every year (especially for coal-fired plants and oil sands); new plants between 2004 and 2011 have tougher emission standards; plants built post 2011 will end construction of dirty coal-fired plants and mandatory CCS/other green technology in oil sands. Tougher standards tied to CCS. Cut GHG emissions from coal processing (for energy and cement industries) by more than 50%.	Install highly efficient CHP plants.	Install CHP (combined heat and power) plants in PEMEX facilities. Substitute individual generation plants for a 15 MW combined cycle plant connected to offshore platforms. Increase PEMEX's energy efficiency target by 5%. Reduce fugitive NH4 emissions from natural gas production, transportation and distribution, increase efficiency of flares on offshore platforms. Reduce the dependence on oil. Increase thermal efficiency of fuel oil-fired thermoelectric plants by 2%. Phase out and reorient fuel oil production incentives; install on the Pacific coast a gasification terminal for imported liquefied national gas and convert fuel oil-fired thermoelectric plants

			to combined cycle.
Electricity Sector	Establishing a clean electricity task force to work with provinces and industry to meet goal of cutting emissions by 25 Mt by 2020. Create 90% of electricity from sources that do not emit GHGs. 40% of all new electricity capacity should be from renewables. Increase electricity from wind and water by 20x. $1.48 billion invested for cleaner electricity	Green Power Partnership provides incentives to companies to purchases green electricity. Efficiency improvements in hydroelectric dams [from WIREC].	Encourage the regulated participation of private enterprise in low carbon energy generation (particularly in CHP and renewables). Increase efficiency of transmission and distribution lines by 2%. Facilitate connection of independent suppliers to the national grid.
Energy Efficiency	New EE requirements for commercial/ consumer products. Ban inefficient incandescent	Maintain the Energy Star program including the EPA recent revisions to standards.	Continue application of current energy efficiency standards and develop new ones. Strengthen current Trust Fund for Energy Savings (FIDE)

	light bulbs. Improve EE by 20% including buildings.	More energy efficient schools.	programs and promote new ones.
Renewable energy	Inclusion of renewable tax incentives in 2008 budget [WIREC].	Promote renewable energy and biofuels to reduce gasoline use by 20% in ten years (cellulosic ethanol is big one).	Promote renewable energy sources, including sustainably produced biofuels, and low carbon technology. Amend the proposed Law on the Use of Renewable Energy Sources to increase renewables in overall power generation above the present target of 8%. Install 7000 MW of renewable energy capacity to generate 16,000 GWh per year (additional to the two current plants). Introduce 500,000 high efficiency wood burning stoves in rural communities.
Transpor-tation	Mandatory renewable fuel content in gasoline, diesel and heating oil	Increase supply of renewable and alternative fuels by setting mandatory fuel	Replace freight trucks and diesel busses more than 10 years old from 2008 onwards.

	(ethanol up to 5%). Fuel consumption standards for cars, light trucks and sport utility vehicles. Increase fuel efficiency in new cars by more than 20%. New fleet management techniques, harmonizing trucking practices and cost-sharing for improved technologies.	standard to require 35 billion gallons of renewable/ alternative fuels in ten years. Reform and modernize Corporate Average Fuel Economy standards for cars and extend the current light truck rule. Slowing projected growth of carbon dioxide emissions from cars, light trucks and SUVs. SmartWay Transport Partnership; improving energy security and reducing fuel consumption as well as idling. 30% efficiency improvement in airline engines.	Increase the performance of the motorized transport fleet by promoting the acquisition of vehicles with low GHG emissions. Implement policies to promote low carbon emissions in public transport and increased use of rail for freight. Increase rail coverage for freight transportation by 10%.
Agriculture	Encourage emission reductions.	Reduce use of nitrogen fertilizers. Remove environmentally	Develop standards for fertilizer use according to region and crop. Promote the reconversaion of

		sensitive cropland from production and install vegetative cover to sequester carbon. Sell carbon credits generated from lands enrolled in CRP program. Grants for agricultural producers and rural small businesses to purchase renewable energy systems. Promote methane reductions.	agricultural land to perennial and mixed crops in 900,000 hectares. Promote alternatives to slash and burn agriculture in 100,000 hectares to reduce related forest fires. Employ conservation tillage and foster cover crops in 200,000 hectares. Rehabilitate 450,000 hectares of grazing and rangelands.
Forestry	Encourage emission reductions and use as credits.	Discouraging illegal logging (President's Action).	Increase the area under sustainable forest management by 2.6 million hectares per year. Expand coverage of current programs of payment for environmental services to accumulatively reach 2.49 million hectares by 2012.

			Increase coverage of Protected Areas by 500,000 hectares par year to accumulate 3 million hectares in the National Protected Areas System. Integrate approximately 6 million hectares of tropical, temperate and arid zone ecosystems within Wildlife Management Areas. Carry out phytosanitary diagnosis and treatment in approximately 640,000 hectares of forest per year. Reforest 285,000 hectares a year to accumulate 1.71 million hectares by 2012. Restore and reforest degraded soils in an area of 115000 hectares annually to accumulate 690000 hectares. Expand the area in commercial plantations at a rate of 10000- hectares per year to accumulate another 600000

			hectares. Identify opportunities for carbon capture projects in forest ecosystems under the CDM.
Emissions Trading Scheme	Not mentioned in federal policy documents.	Not mentioned in federal policy documents.	Establishment of an integrated national scheme for emissions trading through medium term. Increasing number of participating sectors and the value of the carbon traded in phases. Operate with controlled carbon prices which would be subject to periodic review until reaching equilibrium with international market prices. Coupling the national scheme with international schemes and commitments. Bring PEMEX (national oil company) into the scheme.

Adaptation	Not mentioned in federal policy documents.	Not mentioned in federal policy documents.	Policy includes adaptation priorities; focus on public information and institutional capacity to monitor and manage risk due to climate change.
Research	$4 billion for research of renewable energies. Technology fund seems focused on clean energy technology and CCS techniques.	Committed $50 billion to research and $86 billion to R&D tax incentives. Research to focus on clean energy technology including renewable sources. Additional research foci include; carbon sequestration, coal-fired, near-zero emissions power generation, hydrogen, nuclear fission and fusion.	Building research programs focused on energy generation/use; forest resources conservation and management; crop production; livestock production; hydrometeorological risk and water resource management; biodiversity; agriculture; coasts; human settlements; energy generation and use; human health. Also focus on low carbon energy sources and renewables.
Support for Sub-national Agreements	$1.5 billion in funding for provincial/territorial initiatives. Provincial success could be beyond the 20% absolute	Partner with states to adopt a variety of clean energy policies and programs.	Not mentioned in federal policy document.

	reduction called for by federal government (but not budgeting for that specifically)		