

CLIMATE CHANGE POLICY IN NORTH AMERICA

Designing Integration in a Regional System

While no supranational institutions exist to govern climate change in North America, a system of cooperation among a diverse range of actors and institutions is currently emerging. Given the range of interests that influence climate policy across political boundaries, can these distinct parts be integrated into a coherent and ultimately resilient system of regional climate cooperation?

Climate Change Policy in North America is the first book to examine how cooperation respecting climate change can emerge within decentralized governance arrangements. Leading scholars from a variety of disciplines provide in-depth case studies of climate cooperation initiatives – such as emissions trading, energy cooperation, climate finance, carbon accounting, and international trade – as well as analyses of the institutional, political, and economic conditions that influence climate policy integration.

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Climate Change Policy in North America

*Designing Integration in a
Regional System*

EDITED BY NEIL CRAIK, ISABEL STUDER,
AND DEBORA VANNIJNATTEN

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Preface

The commencement for this project was a January 2009 conference in Mexico City, hosted by Tecnológico de Monterrey's Centro de Diálogo y Análisis sobre América del Norte (CEDAN, directed by Isabel Studer), and supported by a Department of Foreign Affairs and International Trade (Canada) North American Linkages Grant, as well as contributions from the Instituto Nacional de Ecología (INE), the Mexico City Government, the UCI Newkirk Center for Science and Society, the University of New Brunswick Faculty of Law, and Wilfrid Laurier University. We are particularly indebted to Adrian Fernández, then president of INE, who enthusiastically supported this endeavour and many of the activities that followed. The conference brought together academics and policy practitioners to discuss the challenges facing climate change cooperation in North America. In particular, we hoped to develop a research agenda that could assess the nature and potential role of regional climate change law and policy within the broader global framework. In this vein, many thanks go to our 2009 conference co-organizer Joseph DiMento. We would also like to acknowledge (in addition to the authors in this volume) the following people for contributing their insights at the conference: Carlos Gay, Douglas Macdonald, Juan Mata, Julia Martínez, Karen Sigmond, Adolfo Mejía, Gerardo Mejía, Thomas Peterson, Isidro Morales, Ma Elena Sierra Galindo, Claudio Alatorre, Pamela Doughman, Rodolfo Lacy, Jean Daniel Saphores, Adriana Lobo, Adrián Vázquez, Fernando Tudela, and Evan Lloyd.

The central theme which emerged from the 2009 conference was that there were numerous, promising climate policy activities ongoing across the continent but little apparent coordination among them. How we might integrate these various efforts in order to better achieve collective goals associated with greenhouse gas reductions in North

America became the primary animus for our continuing research. At the time, many of us expected that national action, particularly in the United States, would provide the foundation for greater integration across climate policy tools and infrastructures – from national targets and carbon markets to sector-based regulatory regimes and incentive schemes. However, these hopes were short-lived, as lawmakers in Washington failed to agree upon a national approach to greenhouse gas regulation, and the dire economic and budget situation across all levels of government further reduced the political will to develop comprehensive and stringent climate policy at national levels in the United States and Canada. While Mexico led in promoting climate policies on the national and international stage, integration of climate policies and tools in North America, it seemed, would not be nearly so easy.

We thus chose to focus on the role of continental policy tools and infrastructure that might offer integrative benefits – carbon pricing, climate finance, emission reporting protocols, trade rules, standards harmonization, and energy grids, among others. In addition, given the shifting political winds and continuing economic constraints, we became increasingly interested in how to build resilience into the rather fragmented and decentralized landscape of climate policy activities in North America.

In September 2010 we held an authors' workshop at Wilfrid Laurier University in Waterloo, Ontario. Supported by a Social Sciences and Humanities Research Council of Canada (SSHRC) Public Outreach Grant (Canadian Environmental Issues), as well as assistance from the University of Waterloo (Interdisciplinary Centre on Climate Change) and Wilfrid Laurier University, we invited a number of policy practitioners to participate in the workshop to provide input into the papers and arguments presented from the perspective of the climate policy community. In particular, we would like to thank the following people for taking seriously our request that we wanted to “ground” our analysis in policy realities: Evan Lloyd, Meera Fickling, Mark Winfield, Jim Whitestone, Alex Wood, Doug MacCallum, Keith Steward, Elias Frieg, Erik Haites, Ron Nielson, and Chris Sands. We also were very fortunate to have the Honourable Stéphane Dion attend and share his insights on the future of climate policy in North America with the workshop participants. Clint Abbott, in addition to co-authoring one of the chapters, coordinated much of the administration of the workshop.

After receiving this excellent input, our authors revised their papers and we submitted the manuscript in the summer of 2012. The manuscript preparation benefited from the input of three anonymous reviewers, who provided detailed and very helpful suggestions. The

University of Toronto Press provided excellent editorial advice and we are grateful to the editorial team, especially Daniel Quinlan, who helped us shepherd this book through the editorial and production process.

We are particularly grateful for the generous support provided by the ClimateWorks Foundation, through the Mexican Catalyst Project grant for CEDAN and INE, which made the publication of this volume possible.

Our editorial and research activities in relation to this book also received considerable support. Neil Craik's work was partially funded by a SSHRC standard research grant ("Greening the 49th"), and he would like to thank his research assistants, Katie Ireton and Dana Decent, who provided excellent support for this project. Isabel Studer is grateful to José Trejo for the support provided in 2009 as workshop organizer, and to Sofia Viguri and Rachel Listinsky for their devotion to detail and hard work as research assistants. Debora VanNijnatten would like to thank Kari Mai Williams for her excellent work in formatting and preparing the final manuscript for submission in the spring of 2012.

En route to publication, of course, the political and economic context has continued to change. Not only has Barack Obama won a second term as president, his February 2013 State of the Union Address contained a renewed commitment to environmental policy, climate change, and green energy. Mexico, meanwhile, also has a new president, Enrique Peña Nieto, who has promised to focus more on poverty and job-creation, less on rooting out drug lords, and who has already taken important measures to provide continuity and visibility to the climate policies that were established in the Calderon administration. In Canada, environmental policy retrenchment at the national level continues apace, and the resources and knowledge that might be used to further climate policy goals are diminishing rapidly. Developments at the sub-state level also continue, including the start of emission trading in California. Despite the ebbs and flows of particular climate policy initiatives, the structure of North American climate governance as described and illustrated in this book remains central to the cooperative efforts among the various policy actors engaged in climate law and policy.

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Abbreviations

ACES	American Clean Energy and Security Act (of 2009)
ALEC	American Legislative Exchange Council
ANSI	American National Standards Institute
APA	American Power Act
BACT	best available control technology
BTA	Border Tax Adjustments
CAFC	Corporate Average Fuel Consumption
CAFE	Corporate Average Fuel Economy Standards
CARB	California Air Resources Board
CCX	Chicago Climate Exchange
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism
CDP	Carbon Disclosure Project
CEC	(North American) Commission for Environmental Cooperation
CED	Clean Energy Dialogue
CEI	Competitive Enterprise Institute
CEPA	Canadian Environmental Protection Act
CER	Certified Emission Reductions
CFA	Commodity Futures Act (Ontario)
CFE	Comisión Federal de Electricidad (Mexico) (Federal Electricity Commission)
CFTC	Commodity Futures Trading Commission
CIDA	Canadian International Development Agency
CONUEE	Comisión Nacional para el Uso Eficiente de la Energía (Mexico) (National Commission for the Efficient Use of Energy)

COP	Conference of the Parties
EERS	energy efficiency resource standards
EIG	Environmental Integrity Group
EISA	Energy Independence and Security Act (of 2007)
EITE	energy-intensive and trade exposed
EPA	Environmental Protection Agency
EPS	emissions performance standards
EU	European Union
EUA	European Union allowances
ETS	Emissions Trading System
EUREC	European Renewable Energy Research Centres Agency
FERC	Federal Energy Regulatory Commission
FES	fuel economy standards (United States)
FIDE	Fideicomiso para el Ahorro de Energía Eléctrica (Mexico) (Trust Fund for Electricity Savings)
FiTs	Feed-In-Tariffs
G8	Group of Eight (of world's largest economies)
G20	Group of Twenty Finance Ministers and Central Bank Gov- ernors
G77	Group of 77 (developing nations)
GA	GridWise Alliance
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GHG	greenhouse gas
GHGRP	Greenhouse Gas Emissions Reporting Program (Canada)
GWP	Global Warming Potential
IEA	International Energy Agency
IEC	International Electrotechnical Commission
IFC	International Finance Corporation
IIE	Instituto de Investigaciones Eléctricas
IIROC	Investment Industry Regulatory Organization of Canada
INECC	Instituto Nacional de Ecología y Cambio Climático (Mexico) (National Institute for Ecology and Climate Change)
IPCC	Intergovernmental Panel on Climate Change
IRC	ISO/RTO Independent System Operator / Regional Trans- mission Organization Council
IRENA	International Renewable Energy Agency
ISGAN	International Smart Grid Action Network
ISO	Independent System Operator

ISO	International Organisation for Standardisation
JMM	Joint Meeting of Ministers
JPAC	Joint Public Advisory Committee
LAER	lowest achievable emission rate
LCFS	Low Carbon Fuel Standards
MEF	Major Economies Forum (on Energy and Climate)
MGGRA	Midwest Greenhouse Gas Reduction Accord
MOU	memorandum of understanding
mpg	miles per gallon
MRR	Mandatory Reporting Rule (EPA)
MRV	Measuring, Reporting, Verifying (GHG emissions)
NAFTA	North American Free Trade Agreement
NAAEC	North American Agreement for Environmental Cooperation
NAEWG	North American Energy Working Group
NERC	North American Electric Reliability Corporation
NESCAUM	Northeast States for Coordinated Air Use Management
NGO	non-governmental organization
NHTSA	National Highway Traffic Safety Administration
NIST	National Institute of Standards and Technology (United States)
NPRI	National Pollutant Release Inventory (Canada)
NRTREE	National Round Table on Environment and the Economy
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
OSC	Ontario Securities Commission
OTC	over-the-counter (derivatives)
PCF	Prototype Carbon Fund (World Bank)
PECC	Programa Especial de Cambio Climático (Mexico) (Special Climate Change Program)
PEMEX	Petróleos Mexicanos (Mexico) (National Petroleum Company)
PND	National Development Plan (of Mexico)
PRTR	Pollutant Release and Transfer Registry
QDA	Quebec Derivatives Act
REDD	Reducing Emissions from Deforestation and Forest Degradation

RETSCREEN	RETScreen Clean Energy Project Analysis Software
RETC	Registro de Emisiones y Transferencia de Contaminantes (Mexico) (Pollutant Release and Transfer Registry)
RGGI	Regional Greenhouse Gas Initiative
SES	socio-ecological systems
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales (Mexico) (Secretariat of the Environment and Natural Resources)
SENER	Secretaría de Energía (Mexico)
SMOC	Sound Management of Chemicals
SPP	Security and Prosperity Partnership (of North America)
SPS	Sanitary and Phytosanitary Measures (WTO)
SRO	Self-Regulatory Organization
TCR	The Climate Registry
TRI	Toxics Release Inventory (United States)
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
WBCSD	World Business Council for Sustainable Development
WCI	Western Climate Initiative
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization
USAID	United States Agency for International Development
U.S.	DOC United States Department of Commerce
U.S.	EPA United States Environmental Protection Agency
USIJI	United States Initiative on Joint Implementation

CLIMATE CHANGE POLICY IN NORTH AMERICA

Designing Integration in a Regional System

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PART ONE

Cooperation and Integration in North American Climate Governance

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1 Designing Integration: The System of Climate Change Governance in North America

DEBORA VANNIJNATTEN AND NEIL CRAIK

In August 2009, U.S. President Obama, Mexican President Calderon, and Canadian Prime Minister Harper issued the North American Leaders' Declaration on Climate Change and Clean Energy, a political statement that outlined a shared vision for a "low-carbon North America," and they committed the three national governments to cooperate across a broad range of initiatives to reduce greenhouse gas emissions.¹ The issuance of this declaration marked the first major affirmation by the three North American leaders of the importance of North America as a governance level to address climate change.

At first blush, North America as a level of governance may appear ill-suited to the task. As a collective action problem, climate change necessarily requires global cooperation. Cooperative actions among North American states, no matter how successful, cannot solve a problem that requires commitments from all of the major emitter nations. Unlike air pollution or free trade – two areas of historic, and many would say successful, North American cooperation – the principal benefits of greenhouse gas emissions reduction cannot be geographically bounded. A second potential obstacle for North American climate change governance is the lack of supranational institutions that might be used to generate binding commitments between North American states and, significantly, the absence of almost any political desire to establish new continental institutions that create formal obligations.² North American leaders are not likely to look to European climate governance, which includes collective obligations and a unified European emission trading system, as a governance model. Not only is there a reticence about creating new supranational governance institutions to address climate

change, but those governance institutions and tools that do exist are dispersed across federal and sub-national levels in overlapping and potentially discordant arrangements.³ The third obstacle is the ever-changing political and economic context facing those involved in climate change governance at all levels; given the long periods over which carbon reduction needs to occur, the ebb and flow of support for related activities – whether because of political opposition or economic scarcity – can be challenging.

The point of departure for this book is that these potential impediments to climate change governance do not negate meaningful cooperation among North American states, but will define its function and nature. What is emerging in North American climate governance is a set of mechanisms that are profoundly multi-level, highly diverse in the range of actors and institutions involved, as well as the objects and means of cooperation, and also dynamic in the sense that governance arrangements change in response to shifts in political and economic conditions. Despite the aversion to shared sovereignty in North America, as well as the ambivalence towards climate policy in many quarters, there are a growing number of coordinated activities and they often extend across national boundaries.

This book has three central aims. The first is to take stock of these decentralized governance conditions in North American climate cooperation with a view to providing an appreciation of the range of policy tools and institutions invoked by governments to address climate change. Second, we employ a systems approach to understand the degree to which these tools and institutions are integrated. Given the collective effort required in carbon reduction, we focus here on the critical question of how governance activities interact and influence one another within the North American system, and whether they are mutually reinforcing. Third, we are interested in the resilience of climate policy tools and institutions in a context of political and economic constraint. In the absence of strong, centralized leadership on climate policy, are there policy approaches that are better able to adapt to changing and unpredictable political and economic conditions?

Interactions in a Climate Change Policy System

Climate change as a policy challenge is exceptional in its complexity, exemplifying “super wicked problems.”⁴ Climate change is plagued by high levels of scientific uncertainty, gaping time-lags between the point at which policy actions are taken and at which improvements might

begin to be observed, as well as convoluted cost-benefit interactions that result in a significant collective action challenge. In the absence of any ready governance structure, one might expect that only a centrally directed approach could overcome these obstacles. At a minimum, it is difficult to understand what benefits might accrue to “smaller” actors from taking climate action, given the incentive structure underlying collective action problems and the differential impacts according to geographic location.

Yet analyses of climate change policy in North America, taken together, paint a picture of an emerging multi-level governance reality that has fostered considerable policy experimentation, particularly over the past ten to twelve years.⁵ This picture also highlights a fragmentation of effort, and analysts are concerned about the prospects for a “scaling up” or diffusion of individual initiatives, such that the fragments can be linked into a broader policy framework. While our book builds on these comprehensive studies, we approach the subject matter using a different analytical lens – more specifically, we argue that North American climate change policy should not be viewed first and foremost as a loose collection of disparate governance activities, but rather as a dynamic and adaptive system within which governance is linked across spatial and organizational scales.

Our relational approach draws on several emerging strands of literature that focus on such linkages, most notably work on socio-ecological systems, or SES.⁶ In line with SES thinking, we portray North American climate governance as a “complex system” composed of interactions among a diverse array of climate policy institutions and mechanisms, which are themselves rooted in a bio-physical reality.⁷ The example of climate finance illustrates the way in which complex socio-ecological systems are composed of separable but interacting sub-systems; the activities undertaken to raise and distribute funds for the purpose of financing greenhouse gas mitigation and climate adaptation measures may rely on carbon markets to generate and allocate capital funds through carbon offset projects. Carbon markets, in turn, require common accounting and reporting procedures, as well as regulatory oversight in order to provide a stable investment climate that is necessary to bring about the offset projects themselves.⁸ Each of these elements within the broader system has its own distinct set of goals and operating requirements, which may be more or less aligned with the other elements.

A systems approach also recognizes that the system as a whole will be subject to common institutional features that influence both the

particular cooperative activities and the interactions among them. As highlighted by Isabel Studer in the companion introductory chapter, one such feature in North America is the absence of formal, hierarchically structured regional governance institutions, such as judicial, legislative, or executive bodies that operate supranationally. There exist in North America, instead, institutions of varying formality that cut across areas of cooperation and structure the kinds of cooperative activities undertaken. The North American Free Trade Agreement (NAFTA) is the most prominent North American governance institution and has very directly influenced climate policy in North America through the creation of rules that determine the competitive conditions of North American firms. The mechanisms associated with free trade also influence more broadly the frequency and density of interactions among constituent governance units and firms within North America. There are, of course, myriad other formal and informal institutional structures that coordinate governance at multiple levels within North America, and we devote particular attention below to “networks” composed of government and non-governmental actors who undertake shared projects across borders.⁹ But systems also have less tangible features that can influence the nature of cooperation within the system, such as the level of trust and reciprocity among cooperating groups, which has been shown to be an important feature of successful collective action.¹⁰

Other analysts, primarily in the field of international relations, also recognize the distinct role that more decentralized governance structures can play in addressing complex global environmental issues like climate change. In a manner similar to the SES approach, they too focus on interactions as a variable that is critical to understanding the overall nature of climate governance. Perhaps most prominently, Nobel Laureate Elinor Ostrom has argued that climate change is best addressed at multiple scales and multiple levels – an approach that Ostrom argues will better promote trust among cooperating entities and encourage much-needed experimentation.¹¹ Ostrom’s polycentric approach echoes similar calls for a “Madisonian” approach to climate policy that allows constituent governments, both at the state and sub-national levels, as well as firms, to develop individualized responses to climate change that best suit the ecological, economic, and political conditions in which they operate.¹² Ostrom sees systemic cooperation as a function of broadening coherence and a scaling up of local activities. Interactions are dynamic, allowing for learning and adaptation, as well as building trust; the key variable here is the degree of communication among participants across sub-systems.

Matthew Hoffman, in his consideration of decentralized climate experiments, explicitly adopts a complex systems approach whereby individual climate governance activities draw on common normative foundations, learn from one another, and organize themselves in patterned and predictable ways. This experimental system is emergent and dynamic, and like Ostrom, Hoffman sees interactions between sub-systems as an important determinant of the overall coherence and effectiveness of the broader system.¹³

Robert Keohane and David Victor portray a somewhat more ordered reality; they describe the global system of climate change governance as a “regime complex,” with international institutional arrangements varying along a continuum from a single, highly integrated legal instrument at one end, to sets of highly fragmented arrangements at the other.¹⁴ Regime complexes lie between the two poles and are characterized by “non-hierarchical but loosely coupled systems of institutions.”¹⁵ Keohane and Victor’s concept of a regime complex differs from Ostrom’s notion of polycentric governance in that systemic cooperation arises from top-down structures. Inter-scheme interactions are understood as either existing in a hierarchical or “nested” relationship, or in an overlapping one where multiple schemes address similar issue areas, without formally structuring the relationship between schemes with ordering rules.¹⁶

Frank Biermann, Philipp Pattberg, and Fariborz Zelli, in their investigation of the global governance “architecture” supporting climate change action, approach decentralization in a more open empirical manner, asking whether higher or lower degrees of fragmentation in this architecture are more likely to be effective.¹⁷ They, too, are interested in the kinds of “steering mechanisms” that might operate on the governance mechanisms being employed; they see such mechanisms as critical to achieving drastic cuts in greenhouse gas emissions. After surveying a wide range of governance tools, they emphasize the benefits of “more integrated governance architectures as opposed to more fragmented architectures.”¹⁸

For both the SES literature and the IR analysts surveyed above, the issue of coherence among decentralized governance arrangements looms large. It is this question regarding the capacity of individual, often non-binding, programs to be mutually reinforcing that underpins the empirical examinations in this book. Given the multi-level, diverse, and dynamic structure of North American climate governance, elaborated on below, our interest here is in the degree to which cooperative

activities are integrated and how coordination among disparate initiatives is or might be structured to improve their effectiveness.¹⁹

The other obvious concern here is resilience. At the time of writing, the climate policy tools and institutions discussed in the various chapters here face considerable political and economic obstacles – including strong anti-environmental forces in the U.S. Congress, the Harper administration in Canada, and a number of provinces and states; a debt-ceiling crisis in the United States; large program deficits in U.S. states and some Canadian provinces, and significant capacity and resource gaps in Mexico. While we would not underestimate the significance of these forces, we argue that there will never be a perfect setting for climate change policy, particularly given the challenge it poses to the prevailing political, economic, and social orders. Instead, the climate policy system will always encounter myriad challenges, particularly given the many sub-systems involved and the parochial political and economic conditions across them. The question for climate policy analysts is how the system responds to disturbances and maintains its functions in the face of changing circumstances.²⁰ What is of particular interest for the analysts in this volume are those points of interaction that are able to withstand such changes or, failing that, hold the most potential for supporting a “gearing up” of climate policy activity in the future.

The International Regime: North American Climate Governance in a Global Context

By conceptualizing North American climate cooperation as a system, we do not mean to suggest that North American climate governance operates autonomously from the global system of climate change governance. To the contrary, it is clear that the global nature of climate change necessitates that North American climate governance is not an alternative to the United Nations Framework Convention on Climate Change (UNFCCC), but rather, interacts with it. While the European climate change system is very strongly aligned with the UNFCCC process and operationalized through an explicitly regional approach,²¹ the relationship of the UNFCCC to North American efforts is more ambiguous.

Certainly, much of the current focus of actual policy effort has been to establish an international framework of reciprocal national commitments and facilitate mechanisms to implement these commitments. The UNFCCC defines the overall objective of the global climate regime as the “stabilization of greenhouse gas concentrations in the atmosphere

at a level that would prevent dangerous anthropogenic interference with the climate system.”²² Defining exactly what constitutes dangerous levels has been the subject of much international discussion, but there is an emerging consensus reflected in the Copenhagen Accord, and affirmed in the Cancún Agreements, that identifies a goal of keeping the global average temperature increase below two degrees Celsius.²³ It is recognized that this goal will require long-term global greenhouse gas reductions in the order of a 50 per cent reduction by 2050 and cuts by developed countries of approximately 80 per cent. The need to reduce emissions by 80 per cent by 2050 has been accepted in principle by both the United States and Canada, along with other developed states.²⁴ For its part, Mexico has set its sights on the “50 per cent by 50” target. While the two-degree increase limit and the associated emission reduction requirements to achieve that goal are driven by scientific considerations, their acceptance in North America represents a marked departure from, until very recently, an unwillingness to directly tie emission reduction targets to science-driven outcomes.²⁵ The acceptance of deeper emission reductions by North American states has largely been a non-credible political, as opposed to legal, commitment, both internationally and domestically; only very recently has Mexico embedded its emission reduction targets in national legislation.

The lynchpin of the UNFCCC architecture is the division between developed, Annex 1, and developing, non-Annex 1, countries – a division that is underlain by the quasi-constitutional principle of common but differentiated responsibilities. Formally, this means that Canada and the United States have an obligation to accept binding targets for the reduction of greenhouse gas emissions, while Mexico is required to undertake nationally appropriate mitigation – in essence, non-binding commitments to reduce their business-as-usual emissions pathway.²⁶ The very binary distinction between Annex 1 and non-Annex 1 countries is giving way to a more nuanced differentiation between countries of varying capabilities and emission profiles, as reflected in the outcomes from the UNFCCC Conference of Parties (COP17) in Durban, South Africa, in 2011. This may have important implications, because Mexico – a member of the OECD – has negotiated outside the auspices of the G77 in climate matters²⁷ and is one of the few developing countries to accept binding emission reduction targets.

The asymmetry between Annex 1 parties and non-Annex 1 parties within the UNFCCC reflects the historic responsibility of developed countries for climate change, the present emission patterns whereby

per capita emissions in the developing world are much lower than those of developed countries, as well as the higher capacity of developed states to reduce greenhouse gas emissions. All of these factors are salient to the North American context, where Mexico's path to industrialization has occurred more recently and its level of development lags behind that of the United States and Canada. Per capita emissions in Mexico are one-quarter those in Canada and the United States. Relative capacity to address greenhouse gas emission reductions is not easily quantified, but it is clearly acknowledged by Mexico that its ambitious emission reduction program depends upon financial support from developed states. Internationally, Mexico has been a principal architect of the emerging global climate financing mechanism, the Copenhagen Green Climate Fund, which is intended to support mitigation, and adaptation programs in developing countries. Any significant expectations at a regional level for Mexican greenhouse gas mitigation will need to be accompanied by secure and credible financing.²⁸

A second structural feature of the international climate regime is its preference for the use of economy-wide mitigation targets and reduction timetables. Under the Copenhagen Accord, the United States committed to a 17 per cent reduction by 2020 from a 2005 base year.²⁹ Canada deliberately and expressly aligned its target and base year with that of the United States.³⁰ For its part, Mexico agreed to measures amounting to a reduction of 30 per cent from its business-as-usual pathway by 2020.³¹ Canada and the United States have shown a preference for shallow reductions in the near term (for example, the 17 per cent reduction based on a 2005 base year is equivalent to a 4 per cent increase from 1990 levels in Canada – an increase of 10 per cent from its Kyoto Protocol commitment of reducing emissions by 6 per cent from its 1990 baseline), which would deepen to reductions in the order of 70 to 80 per cent by 2050. The UN climate regime has given states broad discretion to specify the manner of implementation, including determining from which sector cuts ought to be sought, and the manner by which reductions will be required. In this context, the advantage of an economy-wide approach is that it allows individual countries to measure the reciprocity of mitigation on a country-by-country basis, while still allowing for flexibility of implementation in order to address distinct national circumstances. National targets provide a measure of comparability, and as such, are the preferred basis of international cooperation.

The use of "flexibility mechanisms" has been another prominent feature of the UN climate regime. Under the Kyoto Protocol, parties

may take advantage of three separate mechanisms – emissions trading, joint implementation, and the Clean Development Mechanism (CDM) – to facilitate compliance with national targets.³² Given the absence of binding domestic requirements, the use of these Kyoto mechanisms has been limited in North America, consisting mostly of Mexican participation in the CDM as a host nation.³³ Despite some serious concerns over the credibility of emission reduction credits under the CDM,³⁴ flexibility mechanisms have been viewed positively by many in the international community and will likely continue in the second compliance period (post-2012) under the Kyoto Protocol. The EU Emissions Trading System (ETS), for example, has been structured around the UN climate regime and remains the major acceptor of certified emission reduction credits under the CDM.³⁵ North American carbon markets, on the other hand, remain cautious in their acceptance of CDM credits.

The North American Model: Decentralized, Diverse, and Dynamic

With the Kyoto Protocol, and in the event of a further agreement addressing post-2020 emissions emerging from ongoing negotiations, the international regime plays a hierarchical role, setting top-down rules with which compliance is expected. Yet if the Kyoto Protocol is any guide, the UN climate rules will provide states with considerable flexibility to determine for themselves the manner by which greenhouse gas emissions are reduced. Because reciprocity, or at a minimum, comparability, is required at a global level, there is little demand for actual target-setting at a regional level. However, given the high degree of flexibility that states are granted to implement their national targets, regional cooperation in implementation is likely to be an attractive option where, for example, efficiencies can be gained through high levels of cross-border cooperation, or competitiveness concerns require common approaches. Thus, while regional climate governance is likely to be oriented towards implementation of climate change policy commitments made elsewhere, the structure and modes of implementation will be influenced by pre-existing regional economic and governance structures. In the North American case, climate change governance can be characterized as informal, decentralized, and diverse, as well as dynamic.

To be clear, our focus in this volume is on North America as a scale of *governance*, rather than as a political entity. The literature on North America as a region attempts to set its boundaries on various bases, such as geographic features or contiguity, the institutional imprint, or

political, economic, and/or sociocultural ties.³⁶ Our approach is to use the lens of governance, which encompasses a multiplicity of public and private authority arrangements, both formal and informal. We focus here on transnational governance occurring trilaterally, bilaterally, and within cross-border arenas, in a variety of configurations.³⁷ These configurations – which can operate via horizontal, vertical, and diagonal pathways and among diverse governmental and private actors – constitute the system of climate change governance in North America.

In the absence of any hierarchical governance institutions, environmental trans-boundary interactions within North America most often occur through a combination of ad hoc diplomacy by political officials and, more importantly, a semi-permanent web of trans-governmental networks.³⁸ As a more informal mechanism for intra-system interactions through which domestic agency officials can construct alliances and coalitions with their counterparts across the border, trans-governmental networks generally have limited or no independent authority to impose rules on members.³⁹ Instead, they tend to operate within the realm of “soft law,” based not on legally binding obligations (such as those in a treaty), but rather on results-oriented commitments achieved through pragmatic problem-solving.⁴⁰ Although soft law, in such forms as a memorandum of understanding (MOU), joint programming, or collective action plans, is not legally binding, it can nonetheless influence domestic policy choices and generate actors’ compliance.⁴¹ For example, the seemingly prosaic acts of sharing technical information and regulatory best practices, or negotiating and implementing arrangements on regulatory cooperation (which are at the heart of trans-governmental networking), have distinctly normative aspects, often encouraging what Rene Kemp and Rifka Weehuizen refer to as a “conscious change in thinking” about a problem and its associated policy.⁴² Trans-governmental networking is also interpersonal and reciprocal; as John Kirton and Jenilee Guebert point out, “the actors that make [soft law] commitments do so with the intention of complying with them.”⁴³ One would expect that as network participants move into the more ambitious realms of creating joint climate change action plans these informal normative influences will continue to shape interactions.

Because “super-wicked” problems engage governments at every level and require coordination across governance levels and across agencies within levels, the governance system will also reflect the jurisdictional and political configurations of the interacting governance bodies.⁴⁴ The North American environmental regional system is

profoundly multi-level, engaging national officials across both borders as well as trilaterally and also involving a wide range of sub-national units. As underlined by Studer in the next chapter, bilateral and trilateral climate cooperation has been slow to develop,⁴⁵ surely reflecting the hesitant national approach to climate change in the United States under the Bush administration (and by Congress during the Clinton administration). Yet, after the election of a new Democratic administration in 2008, President Obama and Prime Minister Harper announced a Clean Energy Dialogue charged with expanding clean energy research and development, developing and deploying clean energy technology and building a more efficient electricity grid based on clean and renewable energy in order to reduce greenhouse gases and combat climate change in both countries. A series of working groups were put in place to formulate action plans in each of these areas. Shortly thereafter, the United States and Mexico created a Bilateral Framework on Clean Energy and Climate Change – focusing on renewable energy, energy efficiency, adaptation, market mechanisms, forestry and land use, green jobs, low carbon energy technology development and capacity building – which is similarly structured.⁴⁶

Looking upward at the trilateral level, the North American Commission for Environmental Cooperation (CEC), which has a mandate to promote tri-national cooperation for sustainable development, conservation, and environmental protection, was created in 1994 in response to concerns over the impact of NAFTA on environmental regulation.⁴⁷ Yet the CEC has been involved only peripherally in climate policy, through its research work and stakeholder discussions on the relationship between energy choices, particularly in the electricity sector, and carbon emissions.⁴⁸ While this reluctance cannot be attributed exclusively to any one party, the CEC decision-making structure requires, as a matter of practice, that all three states agree upon the work of the CEC. As with bilateral relations, however, a recent shift in attitude is evident. In 2009, the three governments decided that the CEC should carve out for itself a clearer role in defining the terms of climate policy cooperation on the continent; one of the three priorities for the CEC in the 2010–2015 Strategic Plan is the “Climate Change–Low-Carbon Economy.”⁴⁹

The advent of “soft law summitry” via the trilateral 2005 Security and Prosperity Partnership (SPP) of North America created additional impetus for joint action on environment through the “prosperity” side of programming. Attention to the environment and energy grew over

the course of the 2006 and 2007 summits; in 2007, an Agreement for Cooperation in Energy Science and Technology was signed, focusing on clean energy and energy efficiency. This was followed by a more specific agreement between the United States and Canada on research and development cooperation relating to carbon capture and storage. But like the CEC, express climate policy under the aegis of the SPP was largely absent until the 2008 Leaders Meeting, where the Joint Leaders Statement included a lengthy reference to the need for regional climate change cooperation, "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."⁵⁰ As noted above, the 2009 Declaration on Climate Change and Clean Energy provided a basis for broadening interactions. Although the absence of any Leaders Summits in 2010 and 2011 did not point to vigorous trilateral activity on climate change, the 2012 Summit did reiterate the support of the three leaders for continuing "our efforts to advance a lasting global solution to the challenge of climate change," advancing "the transition to a clean energy economy" and deepening "our trilateral cooperation."⁵¹ However, no significant climate policy initiative has arisen from trilateral processes, nor is one likely to arise. Instead, cooperation between national governments is restricted to piecemeal initiatives on matters such as energy standards harmonization, fuel efficiency measures, transportation initiatives, and some research and development coordination. While political direction is being provided at the most senior levels of national governments, the actual processes of cooperation are left to inter-agency cooperation.

Perhaps most interesting has been the climate policy role played by sub-national governments on the continent over the past decade or so. U.S. states, Canadian provinces, and Mexican states have undertaken innovative and cooperative climate policy action; in some cases, action has become more formalized and more intense in functional terms.⁵² There are multilateral clusters of cross-border initiatives – including the New England Governors / Eastern Canadian Premiers' Climate Change Action Plan, the Pacific Northwest agreement to reduce greenhouse gas emissions by 33 per cent by 2020 through a range of cooperative transportation and clean energy actions, and the Arizona-Sonora Regional Climate Change Initiative. There have also been three sub-national emissions trading regimes in various stages of discussion or completion: the northeastern states' Regional Greenhouse Gas Initiative (RGGI), the Western Climate Initiative (WCI)

involving western U.S. states and Canadian provinces (with Mexican states as observers), and the Midwest Greenhouse Gas Reduction Accord (MGGRA), also with American-Canadian participation. Further, sub-national units like California and British Columbia have been pioneers in bringing new climate policy tools online. Although imperilled more recently by economic constraints and political opposition (e.g., MGGRA is effectively dead), in terms of what is going across borders with respect to climate policy in North America, some of the most ambitious and varied initiatives have emerged from lower levels of governance.⁵³

Looking at bilateral, trilateral, and sub-national climate change governance in North America, and concluding that the climate change policy system is multi-level, yet bottom-heavy, is overly simplistic, of course. This vertical approach does not nearly convey the sheer diversity of climate change policy interactions on the continent. Even if we assume that governments dominate in trans-boundary environmental cooperative spaces in North America,⁵⁴ we must nonetheless take into account the myriad connections across government units, the private sector, and societal actors, and the connections of these actors across levels. Further, the picture that we draw of regional climate policy cooperation must include the possibility of, and need for, diagonal (e.g., federal to sub-national or sub-national to trilateral) relationships.⁵⁵ Thus, the regional system, as we define it above, encompasses interactions across and among semi-autonomous, but networked government units, with many of these interactions drawing force from the bottom up. Federal leadership, particularly in the United States, where federal pre-emption of state climate policy remains a possibility, can shift this balance among units, pushing back down, as we have seen on other environmental policy issues such as air pollution – and which we may now be seeing with U.S. Environmental Protection Agency (EPA) greenhouse gas (GHG) regulations. A similar shifting of authority between levels is evident in Canada, with the federal government entering “equivalency agreements” with provinces, which would allow them to enact their own rules to meet national environmental goals – for example, in relation to federal rules on phasing out coal-fired electricity generation plants.⁵⁶

In this sense, interactions are dynamic and fluid, able to respond to changes in the political and economic environment.⁵⁷ Certainly, the relative informality of cooperative climate policy arrangements in North America facilitates the dynamic nature of interactions, where the forms

of regional climate change cooperation in North America are derivative of the relative – and shifting – position of components within the system.

Integrating Climate Policy in North American

A significant challenge inherent in climate policy coordination in North America, then, is the density and heterogeneity of the interactions involved, particularly given that the constituent governments and subdivisions maintain their external identities and are responsive to parochial political and economic conditions. The governance system in North America clearly lacks a formal framework of hierarchically structured institutions that might direct coordinated effort, raising the question of how such a highly differentiated system can respond to a policy challenge that requires collective effort over the longer term. As argued by the SES and international relations analysts surveyed above, this does not necessarily have to be problematic, as there are distinct benefits arising from the decentralization, diversity, and pluralism that characterize complex systems; since environmental change is driven by multiple drivers and interactions, one should expect a wide range of tactics that target these drivers in different ways. As Arild Underdal explains, “No single cure can deal with more than a small fraction of these activities.”⁵⁸ Yet how these “cures” and “tactics” might be orchestrated is a thorny question, and a common tension that runs through the complex systems literature is the need to balance flexibility and integration in order to achieve effectiveness.

As a political concept, integration refers to the interconnectedness of political and economic institutions (often within geographic regions) and can be measured on a continuum from highly decentralized systems of coordination to supra-national structures where authority is vested in a separate and hierarchically superior institution.⁵⁹ Our interest in this volume, however, is with integration in the more generic sense of processes that enable the constituent parts of a system to work together to achieve a shared goal. As an analytical concept, integration is a systems-level process, and in complex systems it is unlikely that integration will take a single form or even involve similar processes. As a purposive process, integration is not an end itself; instead, it is a means to achieve collective ends.

Daniel Bodansky and Elliot Diringer, in their consideration of an “integrated multi-track” approach to global climate governance, identify

three processes associated with integration that may affect collective responses to climate change.⁶⁰ First, *reciprocity* among cooperating partners promotes integration through the creation of commensurable measurement of efforts and activities. Some states or firms may prefer to address greenhouse gas mitigation through support for research and development, while others may wish to reduce emissions directly. Being able to compare efforts and, importantly, to demonstrate reciprocal levels of effort assures cooperating partners of each other's commitments to achieving the shared goals. Second, the pursuit of *economic efficiency* through the creation of larger and more open markets, thereby allowing emission reductions at lower costs, can advance integration. Finally, *policy coherence* can emerge out of attempts to ensure that activities in one jurisdiction do not undermine activities undertaken elsewhere. Examples here include common technology standards or the development of physical infrastructure that can operate across borders to optimize cooperative efforts across the system. Very clearly, these forms of policy integration are overlapping and work in the same direction.

On the other side of the coin, flexibility provides sub-units within a system with the autonomy and capacity they need to engage in bottom-up activities and innovate in order to contribute to the collective response. The North American system is characterized by a high degree of flexibility, where governance units have been largely free to choose the level of mitigation without fear of having emission reduction requirements imposed on them. In this respect, flexibility is an outgrowth of differing economic conditions within each country and across sub-regions, as well as across different sectors. For example, in geographical regions and sectors that rely heavily on emissions-intensive energy production, such as oil and gas production in Western Canada and coal-fired electricity production in much of the central United States, technological solutions, such as carbon capture and storage, are likely to be preferred. Mexico, on the other hand, has placed considerable emphasis on reducing emissions from deforestation and forest degradation (REDD), given the political constraints on the oil and gas sector. Further, flexibility reflects the search in North America for political feasibility, as a climate governance approach that allows governance units and sub-units to determine the means that best suits their economic and political requirements is more likely to gain and maintain system support. Finally, flexibility in climate policy has been facilitated by features of the UN climate regime, as discussed above,

including broad economy-wide targets, the principle of differentiated responsibility, and the use of flexibility mechanisms that allow for diverse national responses.

Yet the failing of too much flexibility is that it can undermine effectiveness. The non-binding character of climate governance in North America has made deeper and more comprehensive emission cuts elusive. Because climate change is a collective action problem, free riders can undo the benefits of cooperation. At a minimum, free-rider concerns necessitate that North American climate policy be integrated with global climate policy. Formally, the integration between the UN climate regime and domestic governments is structured by legal obligations, with formal compliance requirements. But in the case of informal, political commitments, such as those contained in the Copenhagen Accord, policy congruency is structured to achieve broader global objectives. Interestingly, the Copenhagen Accord has a bottom-up orientation in that the pledges made by all three countries reflect their domestic climate goals. The relationship between domestic climate goals and global commitments is dialectic, as greater reciprocity internationally is likely to make deeper domestic reductions more palatable. The ratcheting effect of international agreement is reflected in the EU's Copenhagen Accord commitment, which contains a deeper reduction commitment that is contingent on the commitments of other developing states.⁶¹ Importantly, flexibility does not preclude reciprocity, but instead recognizes that states may take a different path to achieve common goals.

Effectiveness is also a concern on a regional and domestic level. Free-riders may be states, but they may also be sub-national governance units or under-regulated sectors. Leakage concerns, whereby production shifts to under-regulated jurisdictions (with lower carbon associated costs) abound at both national and sub-national levels. Competitiveness concerns and the basic requirements of fairness operate below the global level, requiring consideration of distributional consequences on a regional, domestic, and sub-regional basis. The decentralized approach to climate policy in North America, which has proceeded largely voluntarily and without regard for reciprocity, has avoided direct discussions of fairness that have animated international discussions. Yet in the event that climate policy requires more stringent actions, Canada, Mexico, and the United States will no doubt need to confront the regional dimensions of fairness and competitiveness. Thomas Courchene and John Allen argue that much of Canada's carbon emissions (and their future growth) relate to energy exports to the

United States. The burden of these emissions falls on Canadian firms, while U.S. firms get the economic benefit of the energy produced.⁶² Courchene and Allen argue that the current carbon accounting structure under Kyoto works to the considerable advantage of energy-consuming countries. Debates surrounding competitiveness currently animate policy discussions on trade-related aspects of climate policy and are particularly salient in North America, given that the liberal trade and investment regime under NAFTA amplifies competitiveness among North American firms. These discussions are likely to intensify as Mexico seeks emission reductions that may play out differently in specific industrial sectors.

A further objective of regional climate policy is the desire to make reductions at the lowest cost and with the least disruption to economic activity. For example, regulatory standards prescribing fuel and energy efficiency may fragment markets in the absence of common or mutually recognized standards. There is no North American mechanism to impose common standards. Instead, individual governments must coordinate their regulatory activities. Carbon-pricing measures, whether through emissions trading or a carbon tax, are at the centre of promoting least-cost reductions. A unified, North American carbon market remains unlikely, but linkage between separate markets may provide an important source of improved economic efficiency within those markets. Broadening market access through linkage reduces volatility (as price spikes are more likely to occur in particular sectors or geographic regions) and ought to lower the overall compliance costs. But market linkage comes with risks and possibly different incentives for linkage.

Indeed, if the challenge of North American climate governance lies in accommodating flexibility while maintaining coherence with global climate goals, as well as maintaining regulatory efficiency, then attention must be paid to the manner in which cooperative activities on the continent are linked (or not). Many of the initiatives and arrangements in operation already interact with one another, in the sense that policy decisions and rules in one governance sub-system will affect decisions and rules made in other governance sub-systems. Yet these interactions among different cooperative mechanisms for climate change policy may not be immediately observable; linkages may be rooted in such technical mechanisms as financial and trade requirements, legal frameworks, or accounting practices. The interactions between international trade and investment rules and climate policy, for example, have

implications across a number of initiatives. Along the same lines, as carbon markets become operational across different areas within North America, the benefits from interlinked markets will demand common approaches on key issues, such as emissions accounting measures, safety valves, banking and borrowing, and, in the case of offset credits, additionality.

In this volume, we are concerned not only with the ways in which individual, often voluntary, initiatives might be linked but also with their capacity to be mutually reinforcing, in the sense that policy actors can communicate and share information, learn from one another, and ultimately develop greater trust in one another so as to engender deeper cooperation. Policy officials need to be able to transmit, in a conscious way, lessons of policy innovation success and failure among jurisdictions and actors. The information requirements and level of uncertainty inherent in complex socio-ecological change, such as climate change, are tremendous. Aggravating this is the “profound asymmetry between our ability to determine short-term and long-term policy consequences.”⁶³ Moreover, successfully managing a differentiated governance structure means having a good understanding of local conditions and incentives. Clearly, then, the system needs to be one that can learn through the regular exchange of information, the constant monitoring of policy initiatives, and then adaptation to the lessons inherent in policy success or failure. It needs to be able to generate new responses and adapt approaches in response to such information. Stephen Young and Clint Abbott in this volume emphasize the benefits of institutional learning whereby new instruments can be adopted without “triggering a wholesale shift in the basic character of the arrangement.”⁶⁴ If policy experimentation, which is touted as one advantage of decentralized governance structures, is to be leveraged, there must be avenues for sharing and scaling up successful policy measures. Learning thus contributes to resilience across the system by creating governance structures that can more successfully respond to changing conditions.

Critical to this enterprise is what Ostrom refers to as the trust-reciprocity relationship.⁶⁵ Central to Ostrom’s understanding of how collective goods, particularly environmental resources, might be governed is her argument that a set of implicit relationships among individuals can contribute to the resolution of problems. Not only do individuals adopt norms but they also make calculations about the likeliness of others to be trustworthy reciprocators who will bear their share of the costs of overcoming a dilemma.⁶⁶ This suggests a social dimension to

integration, whereby the future prospects of cooperation are improved or deteriorate over time, depending on the perceived legitimacy of current efforts. Process values, such as transparency and inclusive decision-making are, therefore, important preconditions for effective adaptive governance.⁶⁷

Part One: Cooperation and Integration in North American Climate Governance

North American climate cooperation provides, in our view, an important opportunity to consider the benefits and limitations of decentralized and self-organized governance. Yet we also recognize that climate cooperation occurs within a particular political and economic context. In North America, as elsewhere, climate politics shapes climate policy. In order to provide the context for the chapters that follow, this introductory section turns, in the chapter by co-editor Isabel Studer that follows, to an overview and analysis of the political and economic factors that have influenced the nature of climate change cooperation in North America.

Studer begins by describing the most salient forces acting on climate policy across Canada, the United States, and Mexico – asymmetrical power relations, a bias towards domestic political concerns, and a related lack of strong trans-border institutions or transnational communities that might frame cooperation at a continental level. In the climate case, Studer argues that, despite an increase in high-level contacts taking place bilaterally and trilaterally, and while noting some broader areas of policy convergence, there is no regional framework for carbon emissions reduction. Even if the high levels of energy interdependence in North America provide the economic rationale to address climate change through energy security concerns, particularly in Mexico and the United States, the reluctance of the U.S. Congress to pass comprehensive legislation for emission reductions is a key obstacle to moving forward on both a global and a regional climate regime. Domestic political and economic constraints in Canada and the United States make it difficult even to supply sound national climate policies, let alone establish regional (top-down) climate initiatives that may benefit all three countries. Unlike the case with NAFTA when powerful transnational corporations demanded regional free trade to improve their competitiveness, there is little private sector demand for formalized North American climate governance institutions. However, there is a