Canadian-U.S. Environmental Cooperation: Climate Change Networks and Regional Action

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Introduction[1]

Canadian-U.S. environmental relations manifest a growing importance of transborder state and provincial cooperation and policy-making.[2] This trend is clear in North American climate change action. Though the Canadian and American federal governments have adopted diverging positions on climate change policy, extensive sub-national climate change action across the Canadian-U.S. border is developing in northeast North America. In this region, Canadian provinces and U.S. states forge ahead with climate change action beyond requirements mandated by their federal governments.[3] This collective effort includes the six New England states (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut) and five Eastern Canadian provinces (Nova Scotia, Newfoundland and Labrador, Prince Edward Island, New Brunswick, and Quebec).

Under the joint Climate Change Action Plan, adopted by the New England Governors **(NEG)** and the Eastern Canadian Premiers **(ECP)** in August 2001, participating provinces and states commit to reduce greenhouse gas **(GHG)** emissions to 1990 levels by 2010 and 10 percent below 1990 levels by 2020.[4] The provinces and states moreover pledge to ultimately decrease GHG emissions to levels that do not pose a threat to the climate, which according to an official estimate would require a 75-85 percent reduction from 2001 emission levels.[5] Since 2001, state and provincial officials have worked to develop and implement more detailed provincial and state level policies and programs and built public-private partnerships in support of the regional plan and goals.

This article draws insights from the literatures on regionalism and networks to examine growing Canadian provincial and U.S. state level environmental cooperation with a case study of the regional NEG-ECP climate change action. The authors attended multiple regional meetings and workshops with public, private, and civil society participants, conducted a large series of semi-structured and open-ended interviews with stakeholders and experts, and reviewed a multitude of climate change documents and reports. We begin by discussing central aspects of

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regionalism and networks as tools for analyzing NEG-ECP policy-making and implementation. Next, we examine regional NEG-ECP climate change policy and implementation and discuss potential avenues through which developments in northeast North America may influence national climate change debates in the U.S. and Canada.

Regionalism and Networks

The two concepts of regionalism and networks offer an opportunity to critically examine central aspects and drivers of developing NEG-ECP climate change action. Traditionally, social science scholars have relied primarily on a combination of geography, administrative designations, and economic factors such as trade patterns, currency use, and/or capital or labor flows to define regions.[6] In contrast, "new regionalism" scholarship focuses on more complex combinations of political, economic, social, and cultural factors to define regions, stressing the social construction of regions.[7] This new regionalism includes interactions among "(1) ideas and their ties to institutions, (2) systems of production, (3) labor supply, and (4) sociocultural institutions, all undergirded by power relations."[8]

If one views regions as complex social constructs that are often based on a multitude of factors, a "region" and "regionalism" can occur at various scales, from the macro-level to the micro-level. There can, moreover, be smaller regions within a larger region. For example, "North America" denotes a large commonly recognized continental scale region while it simultaneously incorporates geographically smaller regional areas with which many people identify, such as "New England" and the Canadian "Maritimes." In addition, regions vary greatly in the extent to which their constituting interactions involve shared decision making organizations, identities, traditions, civil societies, and so on.

While regional identities such as that of New England and the Canadian Maritimes have broad political, social, and cultural salience, the NEG-ECP region is clearly more administrative in origin, being defined primarily in terms of state and provincial membership in a transborder political organization. Nevertheless, factors such as the NEG-ECP region's long-standing and deepening economic integration and cross-border interactions of all kinds, together with the common position of New England and eastern Canada as "downstream" receivers of much continental air pollution, offer multiple justifications that underpin the

social construction of NEG-ECP as a distinct region for environmental cooperation and climate change action.

In addition, administrative designations of regionness, such as that promulgated by NEG-ECP cooperation, also serve to influence the construction of regional connections and identity over time. For example, scientific and technical communities produce regional scale images and knowledge of particular aspects of the environment, economy, and society, including those depicting (or mapping) things like "regional" GHG emissions, pollution transport and deposition patterns, power grid structures, trade and investments trends, transportation of goods, and tourism.[9] These images and related knowledge help frame intra-group and public understandings and debates in regional terms, aiding in the creation of regionally framed problems, policies, and identities.

Network analysis is applied through a number of scholarly disciplines and analyses.[10] The concept of networks is used to analyze complex relations between different actors that may span public, private and civil society sectors.[11] Keck and Sikkink define networks as groups of activists motivated by shared values who seek to change policy through their advocacy work.[12] From this perspective, network analysis can be used to trace specific actors' impacts on policy processes and outcomes, as well as how groups of actors act together in concert in a regional and issue-specific context.[13] Network analysis also allows a focus on the role of individual leaders and policy entrepreneurs, which are identified in other studies as being important in North American local climate change action.[14]

Climate change action across Eastern Canada and New England is part of a longer history of close regional economic and environmental cooperation on issues such as trade, transportation, acid rain, and mercury pollution. While this cooperation is formally led by the region's governors and premiers, and they play important roles in goal setting and policy-making, we argue that a network of committed civil servants in the provinces and states proves influential for regional climate change policy development and implementation. Three decades of environmental cooperation across the region allowed civil servants to forge important professional relationships over time. Many individuals active on climate change have worked together for many years on a number of transboundary environmental challenges.

The structure and membership of the regional network of civil servants is heavily influenced by the administrative definition of the NEG-

ECP region, which is based on formal state and provincial membership. Network participants have discovered and developed common interests in "pushing" their respective governors and premiers to initiate and keep on developing climate change action in concert. It is also common for individuals in this network to move across organizations in the region and work on climate change issues in multiple institutions over their careers. This allows them to both expand the network and exert influence in multiple forms and forums, and shape local and regional policy in different ways.

In addition, civil servants extensively interact with stakeholders outside state and provincial governments. They have built multiple connections to environmental and public health advocates in the NGO sector, many of whom are becoming increasingly active on climate change. Civil servants moreover work closely with experts in regional research institutions that are active on climate change mitigation and adaptation. They also engage regional universities and businesses, initiating climate change related assessments and policy debates. Collectively, this network of people across public and private sectors is an important driver of policy and implementation both at regional and state/provincial levels.[15]

Climate Change Cooperation in Northeast North America

The fact that the NEG-ECP region is a significant source of GHG emissions is often cited by policy-makers and environmental advocates as a justification for climate change action. For example, the region, home to over 23 million people, would rank as the world's thirteeth largest economy if it were a single country.[16] Only ten industrialized countries submitting emissions data under the United Nations Framework Convention on Climate Change emitted more GHG than the Northeast region in 2000.[17] Because GHG emissions have continued to increase since 1990, the NEG-ECP region must reduce GHG emissions by over 9 percent from 2000 levels simply to reach the 2010 target (i.e. a return to 1990 emissions levels). Approximately 84 percent of regional emissions come from transportation and the utility sector.[18] Yet, emissions profiles vary significantly among states and provinces.[19]

Designing institutional capacities needed for climate change action is a significant challenge.[20] Climate change action in northeast North America is embedded in existing institutions and a larger, long-standing process of regional cooperation. The New England Governors and Eastern

Canadian Premiers have held annual meetings since 1973 and work to coordinate policy, develop programs on cross-boundary issues, and to promote regional integration. Regional cooperation includes issues of economic development, transportation, energy, environment, and human health. Since 2000, climate change action has become increasingly important. NEG-ECP activities are coordinated through the Secretariat of the New England Governors' Conference, located in Boston, Massachusetts and the Eastern Canadian Premiers Secretariat in Halifax, Nova Scotia.[21]

Developing the regional Climate Change Action Plan, NEG-ECP participants relied extensively on existing cooperative institutions, particularly the connections and experience generated by earlier NEG-ECP action around acid rain and mercury abatement.[22] NEG-ECP addresses environmental issues through its Environment Committee, which is comprised of the commissioners of the state and provincial departments of environmental protection. NEG-ECP climate change abatement increasingly necessitates participation and collaboration with the NEG-ECP energy and transport working groups and the region's energy and transport officials. NEG-ECP climate change efforts offer expanded opportunities for data gathering, knowledge sharing and the development of more effective policy responses than could be achieved by each individual state and province.

The NEG-ECP Climate Change Action Plan originated from a meeting of provincial and state officials in Fredricton, New Brunswick, in March 2001. This workshop focused on assessments of existing and potential impacts of a changing climate in the region and discussed preferred areas for joint policy action.[23] Based on extensive discussions among state and provincial staff, the New England Governors and the Eastern Canadian Premiers adopted the Climate Change Action Plan in August 2001. A resolution adopted at the same meeting directed the NEG-ECP Environment and Energy Committees to form a special task force of officials from state and provincial agencies to develop specific strategies and oversee and coordinate the implementation of the Climate Change Action Plan.

The regional plan identifies several action steps for emission reductions and climate adaptation.[24] Regional cooperation is directed toward state and provincial economies through "no regrets" measures, i.e. measures that both reduce energy use/costs and GHG emissions. These

include measures to reduce GHG emissions through shifting to lower carbon energy sources and implementing actions that result in higher efficiency in electricity use and the transportation of passengers and goods. In addition, regional efforts aim to aid states and provinces to adapt to an already changing climate and to take advantage of any benefits that might come from these changes.

International commitments under the Kyoto Protocol acted as political stimuli for NEG-ECP emission reductions. The fact that the regional short-term reduction goal is more modest than the Kyoto target is largely an expression of political realism, as regional GHG emissions continued to increase after the adoption of the Kyoto Protocol in 1997. States and provinces pledge to reduce regional GHG emissions to 1990 levels by 2010 and by 10 percent below 1990 levels by 2020. This 10 percent reduction goal exceeds the Kyoto commitments of both the U.S. and Canada, though the deadline is several years later than the Kyoto timetable. The long-term NEG-ECP target of reducing regional emissions reductions to levels that do not pose a threat to the climate is similar to the aim of the United Nations Framework Convention on Climate Change of stabilizing GHG concentrations in the atmosphere at a level that prevents "dangerous anthropogenic interference with the climate system."

The NEG-ECP plan outlines nine general actions and goals pursuant to the regional emissions reduction targets:

1. Establish a regional standardized GHG emissions inventory.
2. Establish a plan for reducing GHG emissions and conserving energy.
3. Promote public awareness.
4. State and provincial governments to lead by example.
5. Reduce greenhouse gases from the electricity sector.
6. Reduce total energy demand through conservation.
7. Reduce and/or adapt to negative social, economic, and environmental impacts of climate change.
8. Decrease the transportation sector's growth in GHG emissions.
9. Creation of a regional emissions registry and explore a trading mechanism

To specify and illustrate policies pursuant to the implementation of these nine action steps, the plan contains thirty-four recommendations for policy action for the participating states and provinces. Some of these actions and their associated recommendations involve building shared

institutions for regional policy-making and implementation review. Others call for continued policy-making efforts by states and provinces in support of the regional policy goals (including emission reduction targets). Finally, the plan contains provisions for outreach to private and public groups and the promotion of public awareness.

Regionalizing Climate Change

Climate change is often framed as a global issue. In recent years, however, a growing number of people have began to view climate change contributions, implications and solutions in regional and local terms, as well. For example, the European Union frames climate change issues in continental terms, in accordance with its institutional scope. At the same time, participants in the Cities for Climate Protection campaign apply a local frame that is consistent with their focus.[25] The regional political and ecological potential of climate change action in northeast North America was noted several years before it was launched by climate change policy analyst William Moomaw.[26] Another policy analyst, Barry Rabe, notes that states have the ability to influence many factors that directly and indirectly influence the generation and emitting of GHGs. These include the energy and electricity sectors, transportation, land planning and use, and waste management.[27]

Regional climate change action in the northeast is based on scientific research and assessment about GHG emissions and ramifications—including information about regional vulnerabilities to climatic change. Developing climate change science informs regional climate change activism and is seen to demonstrate the need for policy action.[28] The regional action plan relies heavily on data from the Intergovernmental Panel on Climate Change. NEG-ECP efforts also draw from national U.S. and Canadian assessments and action plans with regional bearing.[29] In addition, regional groups of scientific and technical experts increasingly design and build integrated regional environmental assessment models and engage in regional monitoring and data gathering.[30]

Several well-respected regional research institutions generate regional data on climate change of relevance for NEG-ECP policy-making and implementation. Such regional institutions include Ouranos and NESCAUM. Ouranos, which was established by several Canadian government agencies and universities in Montreal in 2002, is an interdisciplinary research institution that works on North American

climate change and adaptation. The institution is lead by a former co-chair of the NEG-ECP Climate Change Committee, which developed the 2001 Climate Change Action Plan, and produces regional climate data and modeling of relevance for the NEG-ECP climate change action.[31] The Ouranos staff is well-networked with provincial and ECP officials and their work is well-regarded by policy-makers.

NESCAUM, headquartered in Boston, was created in 1967. It is an interstate association of air quality control divisions in Northeast United States. The organization works to exchange technical information and to promote the coordination of technical and policy issues regarding air quality. NESCAUM staff organizes air quality training programs and promotes research initiatives. They conduct scientific and technical analyses of air quality issues and policy-related questions under contracts from public officials and with funding from non-profit foundations. On the regional climate change action, NESCAUM is most prominently involved in the development of the regional emissions inventory and ongoing discussions on the shape and form of a possible emissions registry.[32]

The use of scientific data and other information from international, national and regional sources often moves through intermediaries—or what Karen Litfin calls "knowledge brokers"—into regional and state/provincial level reports and policies.[33] These translators of information include members of the NEG-ECP Climate Change Committee, other state and provincial officials working on climate related issues, and regional experts and researchers advocating policy actions. Many of these are prominent members of the regional climate change network. The importance of such information and data is visible in the Climate Change Action Plan, NEG-ECP reports, as well as frequently expressed by state and provincial officials.[34]

Various actors have worked to frame scientific information in regional terms. Increasing knowledge about climate change and its regional implications as a result are changing perceptions among numerous audiences in the region in favor of more comprehensive and proactive policy and social action. For example, for complex integrated assessment models to have meaning, they must be embedded within professional communities and networks with shared understandings about scientific and technical research and its products. Scientific and technical assessment such as those related to climate change plays a large role in the creation of regional identity because it is a major source of knowledge about "regional level" environmental and anthropogenic interactions.[35]

Knowledge about regional climate change vulnerabilities moreover has grown in recent years, though much about the specific effects of a changing climate remains uncertain. Research and various forms of assessment suggest that a host of changes may prove disruptive. These include potential changes in storm patterns and severity and the timing of seasonal changes such as later frosts and earlier snowmelts in the spring, having both potential ecological and social ramifications.[36] Annual average temperatures in the region over the last hundred years have risen by two degrees Celsius.[37] Sea level rise could affect sensitive areas of coastal wetlands, salt marshes, sandy shorelines, and low and barrier islands, as well as increases the risks and impacts of storm surges. For example, a recent EPA funded study concluded that the effects of sea level rise and storm surges could total 94 billion dollars (U.S.) for Boston over the twenty-first century.[38]

Reports also suggest that natural resource-based activities relating to fishing, forestry, and agriculture may be affected.[39] Winter tourism and foliage tourism could be adversely affected by a climate change. In contrast, longer and warmer summers could make lakes and beaches more desirable, although coastal erosion from sea level rise and winter storms could have negative affects on coastal areas. A warming climate may also lead to an increased frequency of tropical and sub-tropical diseases. Melting of permafrost in Arctic Quebec would adversely affect the traditional life styles of indigenous Inuit populations who rely on permafrost for hunting and fishing activities.

Many of the potential ramifications of climate change have both economic and symbolic importance for people in the region—from foliage changes to Inuit lifestyle. These vulnerabilities are used by policy advocates across the region. One illustrative example is the "Save Our Syrup: Stop Global Warming" bumpers stickers seen across New England. The bumper stickers are distributed by a Portsmouth, New Hampshire based NGO, "Clean Air–Cool Planet." This and related efforts across the region are designed to raise public awareness and concern about climate change and connect it to local issues with public resonance. These activities, like that of scientific and technical experts in the region, also serve to regionalize and localize climate change issues.

Regionalism and Networks of Change

As argued elsewhere, three interacting processes have driven developments in regional climate change action across New England and

Eastern Canada: (1) ongoing developments in international scientific and political climate change debates; (2) changing incentives for the region's political candidates and incumbents; and (3) the activities of an influential advocacy coalition among state and provincial level civil servants and NGO advocates of climate change action.[40] Yet, merely identifying the driving forces in the region does not fully explain the mechanism by which agents exercise policy influence at the regional and state levels. We argue that close attention to the policy networks linking these three driving forces—and the particular agents each encompasses—explains this influence.

Many of the state and provincial level civil servants who work in areas of environmental protection know one another quite well. This is particularly true of those whose work involves air pollution issues, as they have often worked together for many years. Long before these individuals began talking about joint action on climate change, they had been working together to reduce acid rain, tropospheric ozone, and mercury pollution. Like climate change, these environmental challenges involved taking state and provincial level action, as well as pushing federal authorities in both countries to take stronger policy action. This history has left the environmental policy professionals in the NEG-ECP region confident of their ability to work together, influence their respective governors and premiers, and design effective policy. Furthermore, it has offered them numerous opportunities to work with environmental advocates and experts in the region's NGOs, universities and consulting organizations.

The regional civil servant network is an important channel for diffusing information, ideas, and experiences. State and provincial officials repeatedly express trust and professional respect for their colleagues in the network. As one influential state official said, "We help each other bring the governors and the premiers along." This network builds on past successful efforts on other environmental issues. For example, the success in setting high goals and dramatically reducing mercury emissions—by more than 50 percent between 1998 and 2003—served as an impetus for the formulation of regional GHG goals.[41] In addition, U.S. states' successful use of emissions trading schemes to regulate SO_2 and NO_x emissions serve as precedents for a proposed greenhouse "cap and trade" scheme for CO_2 emissions from power plants.

Of course, the active members of the regional civil servants' network are not toiling alone. An expanding regional network of environmental NGOs, the New England Climate Coalition, has coalesced (with some foundation funding) around climate change action.[42] This NGO network

includes state Public Interest Research Groups **(PIRGs),** state chapters of Clean Water Action and Sierra Club, dozens of local environmental groups, and relatively new organizations focused on climate change such as Clean Air–Cool Planet and Environment Northeast. Coalition members prepare well researched assessments and policy reports, which are read by officials and decision makers and covered by the region's television news programs and newspapers, and coordinate NGO lobbying and public awareness campaigns.[43] NGO representatives lobby officials prior to and during NEG-ECP meetings and use NEG-ECP meetings to publicize their reports and positions.

Interviews with public sector and civil society participants demonstrate that individuals within a host of environmental and public health NGOs are well connected to the public employees who work directly with one another. For example, members of the New England Climate Coalition interact frequently with public and private sector participants, and with technical experts involved in assessment and modelling. Nor are these various sectors completely separate, as personnel move between the public and civil society sectors and between policy-making and advisory or analytical roles.[44]

Officials in both New England and Eastern Canada often cite support from the public for climate change action as a motivating factor.[45] Evidence of the public demand for more stringent climate change goals and policies can be found in the fifty-plus cities and towns in the region that have joined the "Cities for Climate Protection Campaign." Only the U.S. West Coast states have a similar concentration. Pursuant to the campaign's goals, several New England municipalities are developing their own climate change action plans and are calling on state and regional leaders to take supportive actions on a larger geographical scale.[46] In addition, many universities in the region have climate change action plans and emissions inventories of their own.[47] The NEG-ECP sponsored universities program has signed up nearly a hundred U.S. and Canadian universities.[48]

State/provincial and local pressures for more proactive climate change action are also expressed in numerous newspaper editorials and op-eds from local politicians, environmental activists, and scholars in favor of stronger state and federal policy to mitigate climate change.[49] In fact, coverage of developments in climate change science and politics is rather extensive in the elite newspapers such as the *New York Times*, *Boston Globe* and the *Globe and Mail*, as well as in many smaller market publications across New England and Eastern Canada.

In New England, competitive races for federal and state-wide offices regularly include debate about environmental issues. This offers environmental and public health groups opportunities to leverage their influence as they seek to raise public environmental awareness and concern. Environmental leadership is regularly asserted by Democratic and Republican governors, including on efforts to regulate CO_2 emissions from power plants and lower emissions from public sector facilities and activities. In the 2004 Senate vote on the Climate Stewardship Act (also known as the McCain-Lieberman bill), eleven of the twelve senators from New England were among the forty-three who voted for the bill, which called for federal regulation of CO_2 emissions. These eleven included four Republicans senators—four out of the six total Republicans voting for the bill.

In addition, a number of private sector actors have called for climate change action and are engaged in a multitude of voluntary projects to reduce their GHG emissions.[50] On the Canadian side of the border, Hydro Quebec can benefit from regional efforts to reduce CO_2 emissions from energy production and use of fossil fuels. In New England, many power plants across states are operated by the same owner.[51] As many of these power plants are forced by state policies to undertake measures to update technology and reduce emissions, including CO_2 emissions, energy companies find it to be in their best interest to support efforts to have these often more stringent standards applied to their competitors both inside and outside the region.

There are, of course, opponents to regional climate change action. Automobile manufacturers and dealers remain steadfastly opposed to increases in U.S. CAFE standards for automobiles, sport utilities vehicles, and light trucks, and voters seem as opposed to increased gasoline taxes as ever. NEG-ECP participants agree that any move to tax gasoline, energy use or production or CO_2 content would engender staunch opposition from business associations across the region.[52] This suggests that the oft-trumpeted public support for climate change action has important limits.

Lastly, some policy-makers and analysts also claim to oppose the NEG-ECP climate plan on principle. For example, U.S. Senator John Sununu (New Hampshire) is a consistent skeptic of climate science and researchers at the Maine Public Policy Institute refute data pointing to an increase in human influence over the climate, declaring that higher energy prices would be "death to New England."[53]

But Does It Actually Matter...?

Critics of regional climate change action might argue that the rather modest short and medium term goals and ongoing policy efforts of state and provincial leaders in northeast North America will have no discernable impact on aggregate global CO_2 emissions or climate change in the twenty-first century. Yet, by this standard, no climate change policy action taken to date by national and international leaders would "matter." How can we assess some of the actions taken in the four years since the NEG-ECP Climate Change Action Plan was adopted in 2001?

Initial assessment of regional climate policy developments can engage three perspectives associated with the effectiveness and ramifications of the policy outcomes to date. First, a "goal oriented" notion of effectiveness seeks to ascertain whether state/provincial actions taken to date are likely to achieve the targets in the Climate Change Action Plan? Secondly, one can take a more institutionalist approach, seeking to know if climate change concern and policy goals are being institutionalized in the public and private sectors in the region. Third, in an attempt to assesses possible implications of the NEG-ECP initiative, one can ask if the NEG-ECP work is likely to influence actors and institutions beyond the region.

Progress toward the goals?

Assessment reports sponsored by the New England Climate Change Coalition conclude that announced CO_2 (equivalent) reduction programs of the New England states remain well short of the agreed emission reduction goals.[54] If existing programs all yield CO_2 reductions at the top of their range, only one-third of the 2010 emissions reduction target would be achieved. In general, state and provincial officials do not dispute these findings. They argue that they have only begun to take action, and that they are attempting to build on existing programs to develop new ones.[55] Nevertheless, all participants agree that adopted policies, as of 2005, will not meet the NEG-ECP goals for 2010, absent additional actions.

State officials and agencies have launched a host of modest programmatic activities across New England. Such programs tend to focus on "no-regrets" measures, including switching traffic lights to more efficient light emitting diodes **(LEDs)**, promoting the purchase of "Energy Star" products in state and provincial governments, and switching to more energy efficient vehicles in publicly owned vehicle fleets. State officials

cite public and private estimates of potential savings in terms of energy used, CO_2 emitted, and cost reductions resulting from the various small programs. Such programs can save state and local governments millions of dollars annually.[56] In general, provincial officials have launched fewer of such programs.

Important challenges lay ahead in terms of meeting the 2010 and 2020 emissions reduction goals in both the transportation and energy sectors. Put frankly, the targets cannot be met without reducing emissions from one or both of these sectors. The most significant regional policy aimed at the utilities sector, the Regional Greenhouse Gas Initiative **(RGGI),** remains in development. [57] Under RGGI, states from Maryland to Maine work together to establish a common CO_2 permits trading scheme, initially for power generation facilities. At the request of the New England states, the Eastern Canadian provinces were invited to attend discussions in the hope that the resulting RGGI program will further the goals of the NEG-ECP action plan.

Emissions trading systems (or "markets") such as the one under discussion within the RGGI offer opportunities to maximize both emission reductions and cost efficiency.[58] In particular, the initiative's goal to combine the New England power market and the large New York and New Jersey markets (and others, should they choose to join) offers increased opportunities for efficiency gains as well as capturing other benefits from expanding economies of scale. RGGI participants hope to achieve agreement on the proposed "model rule" to guide this market for pollution permits by 2006. This effort seeks to draw lessons from these states' previous positive experiences with SO_2 and NO_x trading schemes.

If the RGGI talks are successful and states agree on sufficiently stringent CO_2 emissions caps, RGGI could achieve a substantial portion of the NEG-ECP GHG emission reduction goal. One aim of the initiative is to increase incentives for the development and distribution of renewable energy supplies, which constitute a small fraction of the region's total energy consumption. Canadian officials, keen to export renewable energy and natural gas to U.S. markets, are supportive of these aspects of the RGGI. While power from hydro facilities has increased in recent years, much of it from Quebec, proposed wind power projects remain slow to come online as they encounter frequent local resistance (and politicians' ambivalence).[59]

In contrast to utilities emissions, where regional policy is at least in development, progress on transport emissions is generally non-existent.[60]

In fact, continuing increases in transportation related emissions alone make the goal for 2010 difficult to meet.[61] Transportation generates approximately one-third of regional GHG emissions.[62] In fact, GHG emissions from the Massachusetts' transportation sector alone are higher than total emissions from more than half of the world's countries.[63] Because of the perceived public unpopularity of the available options to lower transport emissions, even the major environmental NGOs generally avoid addressing transportation issues in high-profile ways.

New England state officials, however, express support (some public and some private) for the on-going California-based initiative to reduce GHG emissions from automobile fleets. Because Massachusetts, Connecticut, and Rhode Island have adopted other aspects of the "California emissions" standards, these states assumed to be among the most likely to adopt California GHG emissions requirements, should these enter into force. As such, most New England state officials seem content to wait for California policy (and litigation) outcomes before taking significant action related to GHG emissions from transportation. Meanwhile, provincial officials on the Canadian side of the border continue to rely on their federal authorities to develop strategies to lower emissions from the transportation sector.[64]

Institutionalizing Regional Goals

In the four years following the adoption of the 2001 NEG-ECP plan, public sector actors largely focused on two sets of implementation tasks: launching of relatively small-scale state-level programs (noted above) and institution building. New cooperative institutions at the regional and state/provincial level were needed to enact, support, and monitor the implementation of the NEG-ECP goals. For example, states and provinces generally lacked the ability to carefully assess and track their annual GHG emissions on a regular basis and most did not possess extensive legal authority to regulate GHG emissions before the regional plan was adopted.

The 2001 Climate Change Action Plan, with the expectation of yearly progress reports given to the Governors and Premiers and media representatives, has helped to institutionalize climate change concern around the region. Policy development and implementation are supervised by the NEG-ECP Environment and Energy Committees, which jointly operate a Climate Change Steering Committee. In addition, human, financial, and technical contributions are provided by

Environment Canada, the U.S. Environmental Protection Agency, NESCAUM, Ouranos, and a number of NGOs in the region.[65] These organizations produce data and disseminate information about pilot programs, "best practices" and "success stories." Furthermore, NEG staff and state and provincial officials work with numerous private foundations to fund conferences, assessments, and reports designed to engender policy-making and implementation.[66]

One major short-term policy goal was the development of a joint GHG inventory.[67] It is seen as a necessity for taking additional effective and measurable policy actions to reduce GHG emissions. NESCAUM leads the development of the inventory. Participants seek to harmonize the reporting and calculation of GHG emissions across the region, to serve as a foundation for both a regional emissions registry and the possible RGGI emissions trading scheme. Also at the regional level, NEG-ECP officials launched a university outreach program, to "challenge" universities to initiate their own climate action measures and increase climate-related research and education efforts on campuses. To date, almost 100 colleges and universities have signed onto the program.[68] While most of the universities are on the U.S. side of the border, a few Canadian institutions participate.

State/provincial level efforts to institutionalize climate change policy goals and actions within the public and private sectors vary substantially.[69] To date, state and provincial climate change policies have been dominated by executive branch action. Issuance of state climate change action plans and individual executive orders are common policy tools. Likely the most comprehensive such executive order was issued in 2003 by Vermont Governor James Douglas, mandating that state agencies and facilities meet the emissions reduction goals established by the NEG-ECP climate plan and establishing working groups and periodic reporting on progress toward the goals.[70] The Maine and Connecticut legislatures also endorsed NEG-ECP goals, calling for state action toward implementation.

Regarding legal development, Connecticut was the first U.S. state to enact global warming prevention legislation (albeit quite vague) in 1990.[71] In 2003 and 2004, Maine and Connecticut wrote the NEG goals into state law, mandating that government agencies work together to achieve the NEG-ECP's target reductions for 2010 and 2020. Bills addressing CO_2 emissions reduction remain under discussion in a number of the region's legislatures, encouraged by regional political leaders and NGOs.[72] Between 2001 and 2005, four states issued state-level climate

change action plans designed to achieve NEG-ECP goals (Connecticut, Rhode Island, Maine, and Massachusetts). Also, officials in Connecticut, New Hampshire, and Massachusetts have moved to establish the authority to regulate CO_2 emissions from power plants.

Among Canadian provinces, Newfoundland and Labrador issued the first provincial action plan, followed by New Brunswick. Other provinces have issued climate change related discussion papers and launched stakeholder dialogues. In general, the Canadian provinces have spent more public resources on public awareness programs than have the U.S. states, promulgating fewer specific provincial climate change regulations.[73] To augment such efforts, Canadian federal authorities launched a national "One-tonne Challenge" campaign in 2004 to raise public awareness about GHG emissions and ways that individuals and households might reduce these.

In addition, many municipalities throughout the region have developed climate related policies. Such action is not formally linked to the regional plan, but is driven by grassroots movements and strong local political leadership. Many cities in the region were participating in the Cities for Climate Protection campaign, sponsored by the International Council for Local Environmental Initiatives (**ICLEI**), before regional action began.[74] This could greatly contribute to the fulfilment of several regional goals, including increasing public awareness and stimulating changes in citizens' behavior on energy use and transportation. However, state and provincial leaders have established few incentives for municipalities to take climate action. In fact, only Canadian federal authorities have an explicit program designed to facilitate and partially fund municipal participation in climate change planning and policy-making.

Potential Implications beyond the Region

Climate change policy-making in New England and Eastern Canada offers potential for various spill-over effects on other regional and federal climate-related programs. Four overlapping pathways of influence can be used to assess this potential: (1) the strategic use of demonstration effects, (2) policy learning, (3) market pricing and expansion, and (4) norm creation and promulgation.

First, if state, provincial, and local officials continue to make progress toward GHG reduction goals even as they sustain economic growth across the region, many supporters of climate change action can be expected to

study and invoke accomplishments in the region. Many of the region's political leaders argue that NEG-ECP climate change efforts should seek to "lead by example" in the face of lagging federal policy-making.[75] In 2003, for example, Maine Governor John Baldacci noted that the NEG-ECP efforts "cannot save the world, but [they can] send a ripple across the continent." He urged NEG-ECP efforts to "raise the bar" for national policies in the United States and Canada.[76] If the region's efforts are deemed successful one may moreover expect international negotiators to invoke them in the future as they seek to pressure U.S. officials to re-join global efforts to address GHG emissions.

Second, environmental policy precedents among leading U.S. states often serve as models (explicitly and implicitly) for future initiatives as other states learn from the policy forerunners. Perhaps most importantly, in the short to medium term, is the explicit regional goal setting and development of emissions inventories, emissions registries, and CO_2 trading schemes. These are "firsts" for multi-jurisdictional GHG policy-making on both sides of the U.S.-Canadian border. These policy innovations accrue lessons and experience over time, from which other advocates and program administrators can learn. Advocates of climate change policy-making in various governmental and non-governmental bodies outside the NEG-ECP region in Canada and the U.S. are likely to draw lessons for their own regions and federal policy. As they do this they are likely to interact closely with policy experts in the NEG-ECP region.

Just as the network of state/provincial civil servants (and their partners outside state/provincial governments) pushed climate change policy in the region, we may expect these individuals and groups to engage outside professional and activist networks to help to diffuse data, knowledge, and policy lessons from the Northeast beyond the region. This could feed into ongoing policy development on climate change in, among others, New York, New Jersey, California, and Oregon.[77] Governors of New York, New Jersey, and the Pacific Coast states also have repeatedly called for more stringent climate change action at state and federal levels. The West Coast governors and premiers have committed to assessing the prospects for their own regional climate change cooperation, similar to that of NEG-ECP.

The NEG-ECP university programs and the ongoing development of city and town climate action plans suggest additional avenues for the horizontal diffusion of ideas and policy options beyond the boundaries of New England and Eastern Canada. For example, the University of New

Hampshire's publication of it greenhouse gas inventory and the methodology behind it, aided by the NGO "Clean Air, Cool Planet," has been used as a model at over two dozen American universities. Many of these universities are outside the NEG-ECP region. There are also Canadian universities working with the NEG-ECP university program that may act as leaders among Canadian universities that look to expand their climate change related activities.

Third, market dynamics hold potential for spreading ramifications beyond the region. Regional efforts attempt to take advantage of economies of scale. If, for example, the regional officials move more aggressively toward greater use of renewable energy development, switch to more energy efficient appliances, office equipment, and low emissions vehicles, then markets for these products would expand. Such market expansion has the potential to push down prices of more efficient products, making them more economically competitive and attractive in other regional and national markets. This would undermine the more extreme claims about the economic and social "disasters" from GHG emissions reductions made by some North American opponents of climate change policy.

In addition, if the RGGI efforts come to fruition (as there is reason to believe), a regional carbon trading market would, in effect, reveal the actual price of particular CO_2 emissions reduction goals (thereby going beyond the many economic assessments that only *estimate* these costs and benefits). This, in turn, allows firms both inside and outside of the region to better assess and budget costs and benefits associated with particular GHG reductions. Once an effective carbon market exists, more firms with reason to believe they are competitive could seek to join the trading scheme. Similarly, additional states and provinces may seek to join in the future, thereby expanding RGGI's geographic coverage. The recent experience in the U.S. Northeast with the development and expansion of the NO_x trading scheme suggests such policy expansion is a distinct possibility.[78]

A forth pathway of NEG-ECP and RGGI influence beyond the states and provinces of the Northeast lies in norm creation and promulgation. Over time, normative change can prove to be a powerful influence on policy-making, as norms shape policies and behaviors that are viewed as "appropriate" and "justifiable."[79] If policy advocates succeed in generating a political and public expectation that GHG emissions should decline over time then policies and behaviors that further reduce GHG emissions

may be judged "better" and more appropriate than those that engender increases. Similarly, if wind turbines come to be viewed, generally, as expected and normal parts of the landscape, proposals to cite them might induce less local resistance over time.

Concluding Remarks

Policy-makers in New England and Eastern Canada have much to do if they are to meet their relatively modest 2010 GHG emissions reduction goal. Incremental progress has been made, but regional policy development has been careful not to violate important taboos in North American politics such as the public demand for cheap gasoline and energy inefficient automobiles and SUVs. While there are efforts to create market incentives to reduce CO_2 emissions from power plants through the RGGI initiative, no similar effort is underway to address transportation—where GHG emissions continue to increase most rapidly.

Of course, state and local officials in one region cannot directly influence many important national drivers of GHG emissions. Many of these will require eventual federal action in both Canada and the United States if they are to change significantly. Examples include automobile and other product standards, energy production and use, and consumer trends. In addition, public and private sector actors are loath to risk putting the region's firms at a competitive disadvantage. This constrains how aggressively regional actors can pursue their goals in the absence of complimentary national climate change policy.

Yet, NEG-ECP climate change action is an interesting case of leading trans-jurisdictional policy development that has the potential to shape national and continental debates about climate change.[80] Climate change policy is developing at local, state/provincial and regional levels across northeastern North America. If politically and economically the NEG-ECP region succeeds in first stabilizing and then reducing GHG emissions while sustaining economic growth, we should expect public, private, and civil society actors outside of the region to take note. Regional institutionalization of climate change concern and policy actions, from the small programmatic activities to regional emissions registries and trading schemes may well serve as models for future national or continental climate change policies. Politicians and civil servants in the region often attempt to push national political leaders to pursue more stringent and more aggressive policies on issues such as acid rain, tropospheric ozone

pollution, and mercury pollution. More recently, regional politicians, civil servants and policy advocates act to get Ottawa and Washington D.C. to become more active on climate change in line with regional and local level NEG-ECP policy developments.

Information about regional climate change and policy experiences will move beyond the region via the many (often overlapping) networks of activists environmental and public health NGOs, professional organizations, and networks of state and local officials and administrators, the work of analysts and scholars, and private sector decision makers and innovators. The region's state and provincial officials, civil servants, and environmental NGOs have taken up knowledge about climate change science and policy from a host of intra- and extra-regional sources. They are reframing climate change risks, responsibilities, and policy options in local and regional terms. Many do so with the expressed goal of (eventually) influencing policy beyond the region.

NOTES

1. Research for this chapter has been supported by the Knut and Alice Wallenberg Foundation, the Department of Political Science, University of New Hampshire, and Boston University. Valuable assistance was provided by John Shea at the New England Governors' Conference and we thank the many individuals in the United States and Canada who consented to interviews for this research. Helpful comments were also given by Debora VanNijnatten and other participants at a conference on the State of Canada-U.S. Relationship at the The Woodrow Wilson International Center for Scholars, Washington D.C., November, 2004. An earlier version of this text will be published in Philippe Le Prestre and Peter Stoett (eds.) *Continental Ecopolitics*. Aldershot, U.K.: Ashgate (forthcoming).

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22. Interviews with NEG-ECP participants, March-November, 2003.

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25. The Cities for Climate Protection campaign is sponsored by the International Council for Local Environmental Initiatives. See http://www.iclei.org

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27. Rabe, *Statehouse and Greenhouse*.

28. *Climate Change New Directions for the Northeast; Climate Change Action Plan 2001.*

29. In the United States, the National Assessment Synthesis Team of the U.S. Global Change Research Program presented a national report on potential consequences of climate change in 2000. A national Canadian climate change plan was released in late 2002. This plan was followed by a report on Canada's changing climate in November 2003.

30. Once such example is the "New England Regional Assessment" published in 2001 and coordinated by the University of New Hampshire's Climate Change Research Center. Information on the project and the report are available at http://www.necci.sr.unh.edu/reports.html.

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43. See http://www.newenglandclimate.org. See also *Global Warming and New England*; Interviews with NEG-ECP participants, March-November, 2003.

44. See Rabe, *Statehouse and Greenhouse*, pp. 77-83.

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49. See, for example, David Cohen and Timothy P. Murray, *State Must Protect Our Climate Now*, op-ed, *Boston Globe*, September 1, 2003.

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67. *Greenhouse Gas Emissions in the New England and Eastern Canadian Region, 1990-2000*; and *2004 Report Card on Climate Change Action*.

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75. Similarly, Connecticut, Massachusetts, and Maine have filed suit against the decision by the Bush Administration and the U.S. EPA in an attempt to overhaul the new source review process and requirements. Further, the New England Governors and the Eastern Canadian Premiers adopted a joint resolution at their 2003 meeting in which they expressed great concern with the EPA decision, and urged the United States government to fulfill the 1990 Clean Air Agreement between Canada and the U.S., which they believe to be in danger as a result of the EPA decision.

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