

**"IN THE PIPELINE" OR
"OVER A BARREL"?
ASSESSING CANADIAN
EFFORTS TO MANAGE
U.S. CANADIAN
ENERGY
INTERDEPENDENCE**

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In recent years, Canadian Prime Minister Stephen Harper has sought to promote Canada as an "energy superpower" and to appeal to U.S. energy insecurity as a basis for ongoing binational cooperation on energy and related environmental issues (for example, Harper 2007). In practice, however, U.S.-Canadian energy interdependence is a far more complex phenomenon that defies the capacity of governments in either country to manage through the conventional policy processes – foreign or domestic – of national governments.

This paper contends that U.S.-Canadian energy interdependence may be understood best as the interaction of multiple, decentralized economic, policy and political relationships – reflecting broader trends in bilateral policy relations noted by Gattinger and Hale (2010).

The author wishes to express his appreciation to the journal's editor and reviewers for their helpful suggestions, and to numerous officials of the US and Canadian governments who shared their time and insights with the author on conditions of confidentiality. Initial research for this essay was supported by the Canada-US Fulbright Program.

Although some of these arrangements have been institutionalized through the Canada-U.S. Free Trade Agreement and NAFTA, as noted by Clarkson (2002, 2008), and by subsequent administrative arrangements (Doern and Gattinger 2003; Dukert 2007; Gattinger 2010), the policies of both national governments have tended to accommodate or, in some cases, facilitate the integration of North American energy markets, rather than to direct or negotiate these arrangements (Plourde 2005).

However, except in the aftermath of major economic or policy shocks, these relationships tend to be driven primarily by variable mixtures of market forces, simultaneously overlapping and competing corporate and societal networks, and disaggregated domestic political processes in both countries – what Stephen Blank (2008; Hale and Blank 2010) has categorized as the “bottom up” dimension of North American integration. As in most policy fields, securing and preserving access to U.S. markets, combined with the side effects of American domestic politics and regulatory processes loom far larger in Canadian policy considerations than do Canadian politics or policies in American policy considerations.

This asymmetry of attention creates significant opportunities for Canadian governments and economic interests to influence American energy policies at the margins – particularly as they relate to cross-border energy trade. Canadian energy is constantly “in the pipeline” or “on the wires.” This reality is generally taken for granted by the relatively few Americans who think about such things. However, the broader the range of interests or the greater the extent of redistributive activity (actual or anticipated) involved in shaping particular American energy policies, as with other economic policies, the less likely that Canadian interests can exercise any significant influence on U.S. decision-making beyond what may be achieved through participation in coalitions of U.S. domestic interests (Hale and Gattinger 2010). In such cases, when

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particular Canadian energy imports are caught in the crossfire of ideological conflicts and interest group competition in the United States, Canada's relative dependence on a single large market can place Canadian interests "over a barrel" unless Canada can engage American political processes successfully.

Canada's reputation as a secure supplier of energy products – and indeed, the largest foreign supplier of U.S. oil, natural gas, and uranium imports – has created a sizeable policy community responsive to Canadian policy concerns, as long as Canadian policies do not discriminate against U.S. national or corporate interests. However, Canada's dependence on the United States as the principal market for its energy exports, and the relevance of secure export markets to the economic viability of many energy development projects given historic volatility in North American and global energy prices, increase the vulnerability of Canadian energy interests (and the governments that depend on them for revenues) to domestic political and market shifts in the United States. The higher Canada's profile as an energy supplier to the United States, the more its exports are likely to be caught in the cross-fire of American domestic debates over energy and related environmental issues. As a result, managing the bilateral energy relationship and related environmental issue has become a key priority for both federal and provincial governments in Canada.

This paper explores the major structural factors that have helped to shape the evolution of U.S.-Canadian energy interdependence, including the shifting relationships between the political and market contexts for bilateral energy relations, during the past twenty years and their implications for theoretical approaches to cross-border policy relations. It then analyzes Canadian efforts to engage the diverse world of American energy policies at different levels of analysis, and their implications for the evolution of bilateral energy relations in the foreseeable future.

Structural and Theoretical Considerations

Discussions of national energy policies – as with most other areas of bilateral relations – take place in very different contexts. These differences are rooted in three major sets of factors: the different political and market contexts for energy and environmental policies in each country, institutional and market asymmetries which create different national (and sub-national) frameworks and

patterns of segmentation for governance, and the asymmetries and variable geometry of interdependence of the two countries. The practical effects of these relationships can be summarized in a series of stylized facts.

POLITICAL AND MARKET CONTEXTS

The United States is a sizeable net importer of most energy sources, particularly oil; Canada is a net exporter of most energy sources, including 30 percent of its oil production and 50 percent of its oil and natural gas production in 2008 (Energy Information Agency 2009). Most Canadian energy exports are sold to buyers in the United States. Canada exported 38.3 percent of all the energy it produced in 2007. Rising energy prices increased energy exports from about 8 percent to 27 percent of overall Canadian exports between 1999 and 2008 – and more than one-third of its exports to the United States (Statistics Canada 2009a). Canada currently supplies 20 percent of U.S. oil imports and 18 percent of its natural gas imports (U.S. Department of State 2010).

However, what market cycles confer they can also withdraw - as demonstrated by global oil prices' vertiginous drop from \$US 139 per barrel in July 2008 to \$35 in January 2009 before rebounding to the \$70-80 range for much of 2009 and 2010 (United States Energy Information Administration 2009). It is also visible in dramatic shifts in natural gas prices and geographical production resulting from technological changes and large-scale discoveries in the southern United States which came on stream in 2008-09 (Ebner 2009; Foster 2009).

Regionally diversified energy exports are economically significant in most provinces - but especially in Western Canada. Power exports play a major role in the investment and production calculations of several provincial electric utilities that are integrated into regional grids in the United States, although electricity trade flows fluctuate both seasonally and annually depending on rainfall and other weather conditions.

The strategic importance of energy imports to the American economy and American security, combined with increased global competition for control over major energy reserves and the resurgence of resource (especially energy) nationalism during the past decade, has increased the importance of energy security in American political discourse. Canada's status as one of the few

major energy exporting countries whose domestic energy industries are *not* dominated by state-owned or controlled energy firms is a major factor in close political and economic relations between the two countries. However, the size and complexity of U.S. energy markets have contributed to a primarily *domestic* policy focus for sectoral and micro-level regulatory policies.

Energy interdependence is institutionalized in major continental and regional distribution networks. However, its extent varies across regions and is highly variable depending on the particulars of different energy sub-sectors (e.g. oil, gas, refinery capacity, pipelines, electricity production, electricity distribution) and relative distance from the Canadian border. Energy markets and infrastructures in both countries are heavily integrated. Interconnected pipelines, electricity distribution systems, financial markets, and comparable legal systems enable most large firms (and many small ones) to operate in both countries as part of broader and deeper networks of cross-border economic activity.

However, the nature of market integration is fundamentally different from the 1960s and 1970s, when the disproportionate influence of major U.S. oil and gas firms in Canada's energy sector became a major source of political controversy. American-based energy firms continue to play a major role in oil and gas development in Canada. Exxon-Mobil subsidiary Imperial Oil became the second largest Canadian oil and gas firm following the merger of market leaders Suncor and Petro-Canada in 2010. Several other major U.S.- and foreign-based firms maintain a significant market presence in Canada's upstream (production) and midstream (refining) oil and gas sectors (see Table 1) – although Chinese and French firms have made significant inroads in recent years with the ongoing shuffling of corporate assets (Chastko 2010; Tait 2010; Yedlin 2010).

Several major factors have reshaped the politics of foreign energy investment in Canada since the 1980s. Perhaps most important, the deep political divisions engendered by the Trudeau government's National Energy Policy of 1975-79 and its National Energy Program of 1980-84 deeply discredited state-led economic nationalism as a basis for federal economic policies. The market access and national treatment provisions of the 1987 Canada-U.S. Free Trade Agreement (CUFTA) and the 1993 North American Free Trade Agreement (NAFTA) were designed as much to protect Canadian provincial and private sector interests against unilateral

actions by nationalist Canadian governments as they were to protect those of U.S.-based multinationals.

Although the two NEPs sought to promote a Canadian-owned oil and gas industry, led by then state-owned Petro-Canada, the prolonged global slump in energy prices between 1985 and 1999 made an even greater contribution to this outcome. The consolidation of the U.S. and global energy industries contributed to the spin-off of several major Canadian subsidiaries of U.S.-based firms under Canadian control, including Talisman Energy (BP Canada in 1992), Suncor (Sun Oil in 1995), and Nexen (Canadian Occidental Petroleum in 2000). With the consolidation and growth by acquisition of other Canadian-based firms, eight of the ten largest oil and gas firms in Canada were Canadian-based and controlled by 2009 (see Table 1). Canadian-based firms accounted for five of the world's twenty largest non-state controlled oil and gas firms in 2009 – compared with eleven US-based firms, and four British and European-based firms. (*Oil and Gas Journal*, 15 September 2010).

Table 1
Canada's Largest Oil, Gas, Pipeline and Petrochemical Firms - 2009

Rank in Revenues (FP 500 firms)	Type	Name	2009 Revenues ('000)	Ownership
5	IO	Petro Canada (De08)	\$ 27,585,000 ¹	Exxon-Mobil (U.S.) 100%
9	IO	Suncor Energy Inc.	\$ 25,036,000	
12	IO	Imperial Oil Ltd.	\$ 21,292,000	
19	IO	Husky Energy Inc.	\$ 15,074,000	
24	Gas	Encana Corp.	\$ 12,681,074	Canadian Oil Sands 36.7% Imperial Oil 25.0%
25	Pipe	Enbridge Inc.	\$ 12,466,000	
29	Oil	Cenovus Energy Inc.	\$ 11,659,740	
37	O&G	Canadian Natural Resources	\$ 10,142,000	
43	Pipe, Util	TransCanada Corp.	\$ 8,966,000	Valero Energy (U.S.) 100%
na	Oil	Synchrude Canada Ltd.	\$ 7,565,000	
60	O&G	Talisman Energy Inc.	\$ 6,373,000	
na	RDO	Ultramar Ltd.	\$ 6,048,000	

67	O&G	Nexen Inc.	\$ 5,587,000	
74	IO	ConocoPhillips Canada Resources Cor.	\$ 5,018,101	Conoco Phillips (U.S.) 100%
na	O&G	Addax Petroleum (De08)	\$ 4,630,000	Sinopec Corp. (China) 100%
na	Chem	Nova Chemicals	\$ 4,063,000	International Petroleum (Abu Dhabi) 100%
na	Chem	Dow Chemical Canada	\$ 3,550,000	Dow Chemical (U.S.) 100%
104	RDO	Gibson Energy ULC	\$ 3,454,137	
109	Util	Atco Ltd.	\$ 3,108,900	
116	Util	TransAlta Ltd.	\$ 2,770,000	
119	Oil	Canadian Oil Sands Trust	\$ 2,551,000	
123	O&G	Devon Canada Corp.	\$ 2,483,957	Devon Energy (U.S.) 100%
142	Util	Gaz Metro Inc.	\$ 2,255,514	
149	O&G	Penn West Energy Trust	\$ 2,154,000	China Investment (China) 5%
156	Util	Union Gas Ltd.	\$ 2,109,000	
165	O&G	Just Energy Income Fund	\$ 1,899,213	
169	E.Serv	Flint Energy Services Ltd.	\$ 1,876,536	
178	O&G	Provident Energy Trust	\$ 1,711,483	
na	Util	Terasen Gas	\$ 1,435,400	Kinder Morgan (U.S.) 100%

Pipe

¹ Petro-Canada merged with Suncor in 2010.

IO – Integrated Oil & Gas Firm; Oil – Independent Oil Producer; Gas – Independent Gas Producer; O&G – Independent Oil and Gas Producer. Pipe – Pipeline Firm; Util – Privately-owned utility; RDO – Refining and Downstream Oil Company; E. Serv – Energy Services firm.

Source: *Financial Post* 500, June 2010.

The prolonged price slump also increased the importance of securing export markets to facilitate the viability of Canadian oil and gas development, particularly after Canada followed the United States in phasing in price deregulation of oil and natural gas in the mid-1980s. These factors reinforced the expansion of cross-border pipeline connections with Canadian pipeline firms Trans-

Canada and Enbridge gaining a major market presence, especially in northern-tier U.S. states, and U.S. firms including Kinder Morgan and Duke Energy expanding in Canada.

These policies have enabled major oil and gas firms to operate freely in both countries. So do major Canadian and U.S. pipeline companies – the latter often in partnership with major energy firms, with some operators investing heavily in private power generation facilities on both sides of the border. As a result, the development of Canada's energy infrastructure since 1990 has been heavily oriented towards servicing American markets. These realities make Canadian producers, provincial and regional economies vulnerable to major shifts in American policies and regulations.

The resurgence of global oil prices after 2000, combined with the development of new technologies, enhanced the viability of large-scale production in Alberta's oil sands, which accounted for more than half of Canada's oil production by 2010. The huge amounts of capital required for the development of the oil sands – estimated at more than \$100 billion during the decade between 2005 and 2015 – created a demand for capital well beyond the capacity of Canadian capital markets to provide. With state-owned or controlled firms controlling as much as 77 percent of global oil reserves by 2008, Canada's openness to foreign capital led to sizeable foreign investments in the Canadian energy sector from all over the world.

The trend to interdependence and integration has been reinforced further by trends within the broader energy industry to manage price volatility and other sources of project risk through the widespread use of joint-ventures on most major projects – from primary resource development to the building and operation of upgraders, refineries and pipelines (Yedlin 2010). The result is the emergence of flexible corporate networks across North America (and beyond) that frequently cut across traditional industry sector and sub-sector boundaries.

These networks often take different forms in different energy sub-sectors, each one with different implications for U.S. and Canadian energy industries. For example, the scale of U.S. dependence on imported energy, especially oil, contributes to the framing of broader U.S. energy policies, particularly those related to oil, in global and hemispheric terms. At the same time, *relative* American self-sufficiency in electricity generation and natural gas and the size of U.S. relative to Canadian markets have made the latter

a price-taker in international energy trade. These realities contribute to extensive policy parallelism on broader issues (Gattinger and Hale 2010), but with varying degrees of micro-policy discretion in different sub-sectors.

INSTITUTIONAL FACTORS

The shift to more market-oriented policies in both the U.S. and Canada has facilitated cooperation and coordination of sectoral policies since the 1980s. However, the effectiveness of these processes has been based on the sectoral segmentation and relative depoliticization of decision-making in both countries.

The fragmentation of energy sector governance in both countries also reflects differences in each country's federal division of powers, varied parallels in the structuring of different sub-sectors in each country, and different processes for the brokerage of competing interests and policy goals (Gattinger 2010). Similar patterns are reflected in the fragmentation of environmental governance in both countries – formally shared between federal and provincial governments in Canada, and between the federal government and state and local governments, reinforced by patterns of Congressional representation, in the United States. As a result, mechanisms for the coordination of energy and environmental policies in each country are relatively weak, with Canadian policies influenced by cross-cutting North American factors.

U.S. energy policies function in two overlapping spheres, international and domestic. International energy policies reflect the reality that the United States is the world's largest energy importer – with net imports accounting for 56.3 percent of U.S. oil consumption in 2008 and 12.8 percent of its natural gas consumption, but only 0.6 percent of its electricity consumption (Energy Information Administration 2009). This reality informs broader U.S. security policies, the global and hemispheric geopolitics of energy production and trade, and its sharply rising current account deficits of recent years, while it makes U.S. energy security a major concern during periods of international conflict. However, while acknowledging and generally valuing Canada as a reliable, politically stable source of energy, U.S. energy policies towards Canada are frequently treated as subsets of U.S. domestic policies – as with other areas of economic and trade policy (Gattinger and Hale 2010).

The segmentation of U.S. energy and environmental policies reflects several different dynamics. These include the relative priority of energy and environmental policy objectives in different administrations, and the degree to which these goals are pursued in a coordinated or more decentralized fashion. For example, cross-border pipeline regulation is the responsibility of the Federal Energy Regulatory Commission (FERC), which has worked closely with Canada's National Energy Board (NEB) on the location of new pipelines. However, new cross-border pipelines also require State Department certification as being in the "strategic interests" of the United States under the National Environmental Policy Act. Regulatory structures governing cross-border and domestic electricity trade are discussed in the section on electricity policy interdependence.

Similar trade-offs exist within Congress, although the decentralization of legislative responsibility (and related appropriations processes) in both houses of Congress tends to privilege interest group politics and the haphazard aggregation of sectoral policy processes at the expense of policy coherence. The effects of federalism are most visible on environmental and land use issues. In this context, state governments may engage in policy entrepreneurship in response to what they view as a federal policy vacuum or Congressional gridlock. The relative openness of American regulatory processes also creates multiple opportunities for localized interests and interest group processes to pursue legal and regulatory challenges to energy generation and distribution projects at both federal and state levels.

As noted above, the focus of Canadian energy policies has shifted substantially from domestic to North American policy relationships since the 1980s. However, Canadian domestic energy policies tend to be fragmented for three fundamental reasons: constitutional-political, the regionally varied structures of Canada's energy economy, and economic expectations resulting from the progressive integration of North American energy markets. As a result, American observers are sometimes bewildered by the reality that "national" energy policies in Canada are generally the result of mutual accommodation between federal and provincial governments, rather than the result of federal policy leadership.

The ownership of natural resources and the regulation of electricity production in Canada are *constitutionally* vested in

provincial governments. Moreover, provincial governments own as well as regulate electric utilities in five major provinces which account for the bulk of cross-border electricity trade. This reality limits the federal government's direct role to regulating interprovincial and international trade and coordinating energy policies in Canada's northern territories in consultation with territorial and aboriginal governments. Bitter memories of inter-regional conflicts in the 1970s and 1980s have been largely resolved by Ottawa's willingness to decentralize energy policies and accommodate market-driven shifts towards stronger north-south trade ties.

However, these decisions have largely precluded unilateral or coercive federal policy approaches on energy issues. They have also fostered expectations that Ottawa will accommodate regional differences when negotiating changes to national environmental policies (defined as those agreed to by federal *and* provincial governments under the 1998 Canada-Wide Accord on Environmental Harmonization) or making related international commitments (Winfield and Macdonald 2007). These calculations have become embedded in the political and policy assumptions of successive governments and Canada's two largest political parties.

The regionalization of energy trade, combined with the regulatory roles played by provincial and state governments have fostered extensive provincial-state linkages on energy issues. Energy issues have been central to cross-border discussions at the Council of New England Governors and Eastern Canadian Premiers since the early 1970s. The Pacific Northwest Economic Region, a public-private sector network involving state legislators from five states (Washington, Oregon, Idaho, Montana and Alaska) and from three Canadian provinces and two territories, is heavily engaged with a variety of regional energy issues – including transmission corridors, technological innovation, related environmental considerations, and regulatory cooperation. Quebec and Ontario maintain extensive cross-border energy linkages with New York State, while Manitoba – a major electricity exporter – has institutionalized regular cross-border meetings with legislators from Minnesota and the Dakotas. Quebec, Manitoba and Alberta have opened government relations offices in Washington, DC, while other provinces have retained well connected U.S. lobbyists to advance their interests. These linkages are significant not only for energy trade, but also on a growing range of environmental issues.

American Energy Policies: The Politics of Gridlock

The modern era of American energy policies which began with the OPEC oil price shocks and supply shortages of the 1970s and early 1980s has been characterized by two fundamental trade-offs: the gradual reduction of regulatory barriers to the functioning of supply and demand in national and international markets for various energy commodities, and the countervailing growth of regulations intended to curtail the environmental effects of energy production and distribution.

During most of this period, American global energy policies have been driven by the inexorable logic of import dependence. Public expectations of relatively plentiful, affordable energy supplies but preferably not with adverse environmental consequences, especially in their own “backyards”, have made security of international supply a leading element of American foreign and security policies. More recent trends include the effects of 9/11, the “China effect” of rising global oil prices, growing price pressures (until 2006) on natural gas, which had largely replaced oil as a home heating fuel and as a major new source for power generation in both countries, and persistent political pressures to coordinate climate change policies with other industrial countries.

Notwithstanding the crude neo-Marxism of some foreign policy analyses, as with widespread suggestions that the 1991 and 2003 Iraq Wars were driven primarily by the need to control Iraqi oil, this does not mean that U.S. foreign policy is driven by the need to obtain physical control of global energy markets. However, it does mean that American policy is heavily influenced by the need to ensure that no foreign power can disrupt global supplies of oil and natural gas on which most major industrial countries, including the United States, most European countries, China, Japan, and India, depend for their stability and growth.

The collapse of global energy prices between the mid-1980s and the late 1990s largely masked this reality as net energy exporting countries, including Canada, sought international capital to modernize and expand their energy industries. However, rising global demand, driven partly by falling prices and partly by the rapid industrialization of major developing countries including China, India, and Brazil, resulted in a major price rebound and the related growth of petro-nationalism after 2000 as many energy producing countries sought to maximize economic rents from rising

prices. As a result, there has been a major power shift from integrated global energy firms based in Western industrial countries to state-controlled firms in both major producing and consuming countries (especially China and India), with their greater capacity to manage international political risk. As a result, such firms now exercise control over about 80 percent of global energy reserves, relegating the publicly traded “supermajors” (Exxon-Mobil, Conoco-Phillips, Royal Dutch Shell, BP, and Total) to a much smaller, if still significant role in global energy trade (Hester 2009).

These trends have magnified post 9/11 concerns about U.S. energy security: the capacity to maintain access to reliable and predictable supplies of energy to support domestic economic growth and limit vulnerability to major supply disruptions (politically-inspired or otherwise). They have also prompted calls for increased “energy independence”, largely through reduced reliance on imported energy, especially from beyond North America. However, the extent of U.S. import dependence, the absence of large-scale, economically-viable alternatives, and the unwillingness of American consumers and taxpayers to accommodate major changes to their lifestyles have precluded large-scale policy shifts of this sort (Bryce 2009).

Although the Bush Administration’s National Energy Policy of 2001 proposed a variety of measures intended to boost domestic and North American energy supplies, competing domestic interests and agendas contributed to Congressional gridlock throughout Bush’s first term. Subsequent energy bills passed in 2005 and 2007 by Republican and Democratic-controlled Congresses respectively, involved extensive log-rolling among numerous Congressional committees – generating significant subsidies and regulatory changes intended to promote the development of “renewable” energy sources (a highly politicized term). Canadian governments were only able to engage this process at the margins, despite the extensive sectoral and micro-level interests of Canadian energy industries in U.S. policies. Box 1 summarizes measures inserted in the 2005 bill to accommodate Canadian interests.

In both cases, the prospect of expanded government regulatory intervention including expanded subsidies for the production and distribution of energy resources, prompted a rent-seeking free-for-all from different segments of the energy industry, industrial and farm groups, environmental NGOs, and other interests attempting

to protect or expand their share of the American federal pie. Perhaps the most visible example of this log-rolling has been the capacity of farm and agri-business interests to secure Congressional mandates (subsequently paralleled in Canada) for the expanded production of ethanol to be blended with motor fuels – despite its questionable environmental benefits and its disruptive effects on energy markets and food production.

However, neither set of measures did much to affect American dependence on energy imports, facilitate expanded domestic energy production, encourage the more efficient use of energy resources, or encourage the large-scale substitution of “renewable” energy resources for the use of coal, oil, and natural gas in American markets. Estimates published by the Energy Information Administration (EIA) in late 2009 suggested that, even with oil prices in excess of \$150/barrel by 2020, Congressional initiatives taken through 2009 would only reduce hydrocarbon dependence from 84.6 percent of total U.S. energy consumption in 2007 to a projected 81 percent in 2030, although the cumulative effects of current policies are expected to reduce this figure to 78 percent by 2035 (see Table 2).

Accommodating Canadian Interests in the 2005 U.S. Energy Bill

- 1) Preventing a price floor for Alaska gas shipped to the “Lower 48” – Canadian officials worked closely with Senators from energy producing states to avoid a price subsidy for Alaskan gas.
- 2) Facilitating exports of enriched uranium to Canada to make medical isotopes – Canadian officials worked to reduce restrictions on U.S. uranium exports to facilitate production of medical isotopes at Atomic Energy of Canada’s Chalk River reactor, with strong support from the American medical community. At that time, Canada supplied about 60 percent of the global market for medical isotopes.
- 3) Framing legislative language for mandatory electricity reliability standards – Canadian officials worked closely with associations representing Canadian and U.S. electric utilities to secure language that would maintain a bi-national regulatory process

through the North American Electricity Reliability Commission (NERC), providing for negotiation through a “remand” process with the Federal Energy Regulatory Commission (FERC) rather than the unilateral dictation of standards. NERC would then work with regulatory counterparts in Canada to implement the same standards.

- 4) Renewable Portfolio Standards – Canadian officials secured a compromise on renewable portfolio standards (RPS) mandating that U.S. electric utilities generate a set proportion of their electricity from “renewable” sources. The revised language provided for standards to include domestic *and imported* sources of renewable energy. To manage competing objectives of electric utilities and environmental groups, compromise language inserted in subsequent legislation provided for the “zeroing out” of hydro-electric generation so that it would neither be included in base levels of generation from which RPS would be calculated, nor in RPS calculations themselves. In that way, utilities purchasing Canadian hydro-electricity would neither be “rewarded” nor “penalized” by the new standards. Canadian interests viewed this outcome as a “second-best” result, but an improvement on previous proposals.
- 5) Drilling in the Alaska National Wildlife Reserve (ANWR) – The Bush administration and several major energy firms had championed oil and gas drilling in the northern Alaska reserve. Canadian officials successfully supported environmental objections (impact on migratory caribou herds, etc.) to the measure.

Source: Confidential Interview, Foreign Affairs and International Trade Canada, January 2006.

TABLE 2
PROJECTED DISTRIBUTION OF U.S. ENERGY
CONSUMPTION, BY ENERGY SOURCE 2008-2030

	2008	2020	2030
Total consumption (Quad BTUs)	100.09	105.00	111.18
	Percentage distribution		
Liquid fuels	38.5	37.5	36.5
Natural gas	23.9	22.2	22.5
Coal	22.4	22.2	21.8
Nuclear Power	8.5	8.8	8.4
Hydropower	2.5	2.8	2.7
Biomass	3.1	3.7	4.7
Other renewable energy	1.2	2.9	2.9
Net electricity imports	0.2	0.2	0.2

Source: U.S. Department of Energy "Release overview", <http://www.eia.doe.gov/oiaf/aeo/overview.html>; accessed September 24, 2010.

The election of President Barack Obama in 2008 may have changed the formal priorities of the administration and the political calculations of assorted interest groups. But it has done little to affect the overall processes of Congressional log-rolling and special interest rent-seeking that dominate American energy and environmental politics (for example, see Lizza 2010). Among other things, President Obama committed his administration to pursue a policy of greater energy independence – replacing the equivalent of all oil imports from the Middle East and Venezuela from domestic energy sources within ten years. Reaching this goal would require the aggressive promotion of new energy technologies and “renewable” energy sources, the negotiation of an international climate change agreement involving hard caps on medium- (2020) and long-term (2050) carbon emissions, and legislation of other fiscal and regulatory measures to promote greater energy efficiency and environmental sustainability.

In practice, the 2008 elections also contributed to a significant shift in the balance of interests in Washington. For example, Congressional Democrats replaced the long-serving chair of the House Energy and Commerce Committee, John Dingell (D-MI) with California Democrat Henry Waxman. The Democratic leadership would be heavily influenced by environmental groups seeking to expand barriers to the development of new domestic and North American sources of oil and gas production, coal and nuclear power generation – both on environmental grounds and with a view of driving up prices to increase the economic viability and availability of alternative energy sources and new technologies. However, shifts in public opinion which led to major Republican gains in the 2010 Congressional elections make the achievement of these goals appear more elusive than ever. These developments will be discussed further in the next section of this paper.

U.S. Environment and Energy Policies: Paradigm Shift or Evolution?

As noted above, American energy and environmental policies since the late 1980s have been characterized by a shift of the former towards more market-driven approaches to the production and distribution of various energy sources, balanced in large measure by an expansion of environmental regulations intended to promote environmental quality and sustainability on both micro- and macro-policy levels. Rules may be substantive – as in tighter fuel efficiency and emissions standards for transportation equipment, state land-use policies, or California’s low carbon fuel standards – or procedurally based, expanding existing provisions for stakeholder engagement in rule-making processes. Micro-policy approaches typically address specific pollutants harmful to the health of humans, other species, or particular bio-systems. Macro-policy approaches attempt to pursue broader systemic objectives.

The fragmentation of American policy processes – both legislative and regulatory – has contributed to a greater emphasis on micro-regulatory initiatives, whether through pro-active regulation or requirements for highly structured environmental assessment and consultation processes which provide legally actionable rights for multiple stakeholders. The result has been to create a system of multiple checks on energy developments that one Canadian diplomat characterized sardonically as aspiring to a progression from “NIMBY” (not in my back yard) to “BANANA” (build

absolutely nothing anywhere near anything), to “NOPE” (not on planet earth) (Confidential interview, May 2006).

More prosaically, it has created a continuous, multi-cornered, and highly contested process of interest advocacy, rent-seeking and political balancing among different energy, environmental and consumer interests which lends itself to incremental and highly segmented policy shifts at best, and complete gridlock characterized by “negative-sum” political and economic games at worst.

At micro-policy levels, the political climate for environmental and energy policies lends itself to a project-by-project process of environmental hearings and negotiations in which project developers must negotiate the terms for new energy production and distribution facilities in a series of local and state level regulatory processes which are often poorly coordinated, and subject to legal challenges. At best, such processes can lead to improved consultation with all stakeholders and a measure of consensual policy development. In practical terms, these debates have also led to further sectoral and regional fragmentation of environmental and energy policies.

However, they may also become permanent obstacles to the expansion of energy infrastructure, increasing U.S. dependence on imported energy, creating barriers to the modernization of energy infrastructure, and creating perverse incentives to preserve inefficient or more polluting generation and refining facilities because of the costs and uncertainties of building new ones. A combination of economic uncertainties and regulatory obstacles have precluded the building of any new oil refineries or nuclear power generating facilities in the United States since the early 1980s, despite substantial growth in energy demand. Concerns over fish habitat have limited the expansion of hydro-electric power generation and, in some cases, reduced the operating capacity of existing facilities. Conflicts over definitions of “renewable energy” have already been noted.

These debates affect Canadian energy and policy interests on several levels – even before broader policy considerations related to climate change and the longer-term conversion of the North American energy economy to more “renewable” energy sources and technologies are considered.

U.S. domestic environmental checks and balances have created major incentives to expand Canadian oil sands production as a politically reliable, if relatively high-cost source – thus

expanding the vested interest in such production among Canadian governments due to its effects on economic activity, employment, and public sector revenues. They have also contributed to rapid growth of electric power generation from natural gas – a relatively clean but (until recently) high-cost energy source – particularly in the U.S. northeast and Pacific northwest. These developments prompted large-scale pipeline construction to support industry growth in Western Canada during the 1990s, together with much deeper integration of natural gas, pipeline and power generation markets in the United States and Canada.

The projected depletion of conventional natural gas resources, until large-scale discoveries of shale gas in several American regions after 2006, also prompted growing cooperation among North American governments on long-term natural gas strategies. This included the planning of terminals to allow imports of liquid natural gas (LNG) from other continents. U.S. environmental barriers to the construction of such facilities prompted studies of several alternative locations in Canada and Mexico – characterized by one observer as “America’s gastanks” – until the collapse of gas prices in 2008-09 put these developments on hold.

Regulatory changes introduced by the FERC in the mid-1990s led to the growing integration of Canadian electric utilities, most of them owned by provincial governments, into newly created regional Independent System Operators (ISOs) in the United States. To maintain access for their power exports to U.S. markets, Canadian provinces have generally provided U.S.-based producers for reciprocal access to wholesale power markets, although regulatory liberalization of retail markets and transmission services varies widely among provinces.

Hydro-electric power accounts for more than half of Canadian electricity production and a sizeable majority of Canadian power exports to the United States, especially in years with higher than average precipitation. Renewable portfolio mandates that exclude hydro-electric power have a significant impact on the market for Canadian power exports, as well as influencing financial considerations for new power projects, which are heavily sensitive to the capacity to export surplus power.

A major power blackout in 2003, which ranged from Manitoba through New Brunswick, encompassing most of the upper midwest, mid-Atlantic and northeastern United States, prompted

the creation of the North American Electricity Reliability Council (now Corporation) – a bi-national, industry-driven body authorized by U.S. legislation and parallel regulatory measures in Canadian provinces. In practice, technical regulations are approved first in the United States following extensive cross-border consultation, then implemented in Canada (Gattinger 2010).

Although Canada's recoverable oil reserves are the second largest in the world, regulatory restrictions on oil sands imports proposed by U.S. environmental groups could significantly affect the economic viability of expanded production and the development of new technologies to reduce the environmental impact of oil sands production and upgrading – even before the introduction of legislated caps on carbon emissions. Fiscal measures intended to provide incentives for new technology – including but not limited to carbon capture and storage (CCS) – have become a high priority both in cross-border “clean energy discussions” between Canadian and U.S. governments, and in Canadian domestic negotiations between federal and provincial governments on climate change policies. However, the technical and economic viability of these measures are open questions (Green 2009; Corcoran 2009, Vanderklippe 2011). It remains to be seen whether new technologies capable of converting CO₂ into hydrocarbon fuels may become an economically viable alternative or complement to such processes (Reynolds 2011).

Four large and medium-sized Canadian provinces are already parties to the Western Climate Initiative negotiated by six western American states, which is in the process of designing a regional cap-and-trade initiative on carbon emissions. Two Canadian provinces are formal observers of the Regional Greenhouse Gas Initiative (RGGI) launched by ten northeastern, mid-Atlantic, and midwestern U.S. states.

However, the central debate linking contemporary American environmental and energy policies has been over the range of measures to be adopted by Congress to limit U.S. carbon emissions and facilitate the transition to a lower-carbon energy economy. The full parameters of this debate are beyond the scope of this paper. However, its outcome will undoubtedly affect Canada in several ways.

First, Canada's federal government has already signaled that its targets for reducing carbon emissions will be closely linked to U.S. legislative commitments. The effects of diverging commitments

under the 1997 Kyoto Protocol, which was effectively rejected by Congress, demonstrated that the two countries' economies are too deeply integrated for Canada to take independent action or establish substantially different goals without reference to American policies, despite occasional rhetoric to the contrary (Macdonald and VanNijnatten 2010).

Secondly, although cap-and-trade legislation is unlikely to pass for the foreseeable future, Congressional leaders have signaled the possibility of imposing "border measures" to protect American industries from competition from countries which have not implemented carbon reduction policies substantially comparable to those of the United States. The potential impact of any such measures on Canada's deeply integrated economy is a major concern for Canadian governments. The implications of Environmental Protection Agency (EPA) regulations on emissions by power plants and refineries introduced in 2010-11 on future cross-border trade remain uncertain at time of writing.

Thirdly, the integration of the two countries' energy economies creates shared incentives for the development of new technologies that can facilitate the transition to greater environmental and economic sustainability (U.S. Department of Energy and Environment Canada, 2009). However, the economic viability of these initiatives depends significantly on yet-unseen details of Congressional legislation and, in Canada, its effects on the varied cost-structures of the country's energy sub-sectors.

The greater the redistributive effects of proposed legislation – whether through the multi-cornered competition for federal subsidies that has characterized Congressional debates during the past decade, or the disparate regional effects of proposed carbon pricing mechanisms, or the varied economic impacts of regulatory changes on different industries and groups of consumers – the more difficult it becomes for Canadian interests to secure accommodation within the American policy umbrella, except in concert with comparable organized American interests or through the implementation of parallel domestic policies. This is the central challenge of influencing contemporary American policies towards Canada on energy and related environmental policy issues.

Canadian Efforts to Manage Interdependence: Macro-Perspectives

Canadian efforts to manage energy policy interdependence and, while doing so, influencing American energy and environmental policies towards Canada since the late 1980s have been facilitated by three broad realities. First, the federal governments of both countries have been committed to a market driven framework for policy development which has allowed for the pursuit of broadly complementary policies.

Secondly, a general trend of falling energy prices between the mid-1980s and late 1990s broadly reconciled the interests of producers and consumers while leaving economic room for stronger environmental regulations. This trend avoided the zero-sum games in domestic politics that often politicize even the small details of energy policies. The relative depoliticization (and, in Canada, decentralization) of energy policies also allowed governments to manage competing regional interests below the political “radar” for the most part while developing extensive bilateral administrative arrangements, which more recently have extended to Mexico as well.

A 2004 Canadian government report noted several major institutional structures for bilateral energy policy communication and coordination. The Energy Consultative Mechanism established in 1980 provides for annual meetings between cabinet-level and senior officials. The North American Energy Working Group (NAEWG), a trilateral body of mid-level civil servants formed in 2001, publishes periodic studies on future patterns of energy supply and demand to facilitate policy planning in each country. NAEWG’s work is distributed among eight sub-groups: “electricity, natural gas trade and interconnections, energy efficiency, regulation, nuclear power, hydrocarbons, oil sands, science and technology, and the assembly of generally compatible statistics and background data” (Dukert 2007:134). The three federal energy regulators – FERC, NEB, and Mexico’s Comisión Reguladora de Energía – also meet regularly to exchange information on regulatory issues, as well as coordinating cross-border projects on a bilateral basis (Mouafo et al. 2004).

Thirdly, growing U.S. concerns for energy security – if not the chimerical vision of energy “independence” sometimes advanced by American politicians – have generally aligned U.S. government interests in securing Canadian energy imports with Canadian industry and governmental interests in securing access to American

markets. The Alberta government, in particular, sought to stake out this territory in order to protect growing investments in oil sands development, even as other provinces sought to align themselves with regional GHG cap-and-trade systems designed by coalitions of U.S. state governments.

However, while some business groups actively lobbied after 9/11 for negotiations leading to a comprehensive energy and security deal that would combine ease of access to U.S. markets with a common security perimeter (e.g. Dobson 2002; Manley et al. 2005), the Chretien government preferred a more incremental approach that would accommodate growing public hostility to the Bush administration in Canada without reopening domestic policy divisions of the sort that had wrecked the Trudeau governments of the 1970s and 1980s. Facing similar domestic constraints, both the Martin and Harper governments have quietly encouraged greater provincial engagement with U.S. state counterparts (and even within the Canadian Embassy in Washington) as a means of broadening the lobbying resources available for engaging an American political system increasingly dominated by Congress.

This relatively benign policy environment – except for cross-border networks of environmental NGOs lobbying for more restrictive climate change policies – began to dissipate following the 2006 Congressional elections. Sharply rising energy prices accelerated the growth in the U.S. trade deficit while increasing consumer resistance to the higher taxes needed to finance alternative energy sources. Both Democratic and Republican Presidential candidates in 2008 endorsed the principle of a cap-and-trade system, while carefully fudging its details.

Since President Obama's election in November 2008, the Harper government's broader environmental and energy policies have resembled a multi-level game in which American policy, legislative, and international diplomatic initiatives are central to Canadian calculations, while Canadian interests are only selectively of interest, and more often, are peripheral to American policy-makers (Hale 2010). Moreover, Ottawa faces the additional handicaps of working within an unstable minority parliament, and of needing to coordinate its policies with a series of cross-cutting provincial initiatives to enhance both the political and technical viability of its policy initiatives. Responsibility for this complex, constantly shifting process was been given to Environment Minister Jim

Prentice and his senior officials before the former's retirement from electoral politics in late 2010. Environmental policy specialists in the Canadian Embassy have similar responsibilities for diplomatic coordination in Washington.

Canada's engagement with the American political system takes place on at least six different levels. (1) Global diplomacy, conducted mainly by senior Environment Canada officials, has focused primarily on preparation for international climate change conferences through the United Nations' IPCC process. (2) Bilateral regulatory and research initiatives, discussed above, involve federal officials in both countries, reinforced by bilateral meetings of cabinet-level officials from the two countries. (3) Canadian diplomats have been constantly engaged with U.S. Congressional processes aimed at producing some combination of energy and environmental legislation to promote some combination of greenhouse gas emissions, the production of clean energy and the development of related technologies. (4) Canadian diplomats and provincial premiers are also engaged with a range of state level regulatory initiatives (and related provincial activities) on similar issues. (5) National governments cooperate on separate regulatory (and market-related) initiatives relating to different segments of Canadian energy industries which are integrated to varying degrees within North American and global markets. (6) These cross-cutting linkages are reinforced but also contested through cross-border cooperation and coordination among energy industry groups and environmental NGOs in both countries – albeit often in competition with one another.

Macdonald and VanNijnatten (2010: 177ff), note that Canada and the United States have generally taken similar negotiating positions in attempting to influence the development of the international climate change regime since 1992, and that the North American context plays a significant role in the development of Canadian policy positions. This reality is not just the by-product of American influences (governmental, market-driven or societal) but of domestic political and economic pressures as well. Canadian government officials have frequently coordinated their international activities with those of the Obama Administration through the Major Economies Forum and through ongoing processes for U.N. climate summits.

Four key principles have guided Canada's environmental and climate policies in dealing with the Obama Administration. Safeguarding domestic economic growth remains its first priority. The Harper government seeks to integrate environmental policies with the continuing renewal of Canada's capital stock, especially its energy and transportation sector assets, over the next twenty to thirty years. As noted above, it continues to support technological change capable of improving energy efficiency and reducing GHG emissions from domestic sources. International policies are to be aligned with actions to be taken by the United States and other major emitting countries, especially China (Prentice 2009).

This approach is intended to position Canada to parallel whatever policies emerge from U.S. domestic debates, working with lawmakers on both sides of the partisan divide. However, the major focus of Canadian efforts has been to engage the Obama administration, while quietly discussing Canadian concerns with key members of Congress – especially Senators viewed as relatively open to the concerns of cross-border interests.

It has also led Canada to parallel some American regulatory initiatives – especially for manufacturing industries whose operations are highly integrated across national borders. For example, Canada has followed regulatory changes announced by the U.S. Environmental Protection Agency (EPA) in 2009 in increasing fuel efficiency requirements for cars and light trucks produced in North America by 25 percent to 35.5 miles per U.S. gallon between 2012 and 2016. Environment Minister Prentice has also announced plans to use regulatory measures to ensure that automotive tailpipe emissions parallel future American regulatory initiatives. (Laghi and McCarthy 2009; Prentice 2009a.)

Canadian Efforts to Manage Interdependence: Cap-and-Trade or Cap-in-Hand?

The Harper government actively engaged the Obama administration on environmental and energy issues. President Obama's February 2009 visit to Ottawa launched the Clean Energy Dialogue between the two countries, with cabinet-level oversight by Environment Minister Jim Prentice and U.S. Energy Secretary Samuel Chu. Whatever its substantive effects in the short-term, it reflects deliberate efforts by Canadian officials to institutionalize bilateral discussions on issues of mutual benefit to complement

broader policy processes within the Obama Administration. Reports tabled for Prime Minister Harper's meeting with President Obama in September 2009 note the formation of three working groups to prepare recommendations for joint initiatives in the following areas:

- developing and deploying clean energy technologies, with a focus on carbon capture and storage (CCS);
- expanding "clean energy" research and development; and
- building a more efficient electricity grid based on "clean and renewable" generation. (U.S. Department of Energy and Environment Canada 2009).

These initiatives align with current carbon reduction strategies of Canada's oil and gas producing provinces, especially Alberta and Saskatchewan, and neighboring states, especially Montana and North Dakota (Taber 2009), as well as with efforts to develop a stronger regional grid to take advantage of the widespread distribution (but operational limitations) of wind power generation across the region. Although numerous observers have raised concerns about the costs, technical challenges and potential environmental risks of using CCS technologies on a large scale, these measures have the practical advantage of addressing U.S. electric utilities' heavy dependence on coal-fired power generation.

However, Canada is at a significant disadvantage in engaging ongoing Congressional processes. The interdependence of major industry sectors creates strong pressures for Canada to coordinate its regulatory policies with comparable American processes. Some of these processes involve active collaboration. Others are unilateral processes originating in the United States and subsequently paralleled in Canada. The proverbial devil is in the details of these arrangements which typically vary on a sector-by-sector basis. For example, the "Waxman-Markey" bill passed by the House of Representatives in June 2009, but which later died in the Senate, contains 397 regulations and 1,090 mandates, including standards for many products traded between the two countries (P. Clark 2009).

However, the normal processes of Congressional log-rolling rarely lend themselves to intergovernmental coordination – even though they may accommodate "micro-strategies" (Gotlieb 1991: 35) to secure accommodation of Canadian interests on a wide variety of technical and industry specific issues.

Cap-and-trade's failure to overcome political gridlock in Congress has provided ample evidence of the challenges of brokering a legislative compromise amid the competing pressures of interest group politics, and its convoluted implications for different groups of Canadians. The Obama Administration's preference for a primarily "auction-based" system in which carbon credits would be sold off (as suggested by many economists) rather than distributed at the discretion of Congress was rapidly discarded. Henry Waxman, the veteran California Democrat who headed the powerful Energy and Commerce committee, was forced to negotiate with centrist Democrats from industrial, coal-dependent, and agricultural states who sought to protect their constituents from sharp increases in energy costs. As a result, Waxman finally agreed to distribute 85 percent of overall credits free to various industries – especially electricity generation and manufacturing. This process was cross-subsidized by fewer permits for the oil and gas industry and related sectors (*The Economist* 2009). Additional regulations required that the resulting savings be passed on to homeowners – a measure seen as vital to its political viability but reducing incentives for conservation and the substitution of "cleaner" fuels. These debates over the sectoral, regional, and income-based distribution of costs and benefits tend to parallel those over the adjustment costs of climate change policies in Canada.

The Republican takeover of the House of Representatives following the 2010 Congressional election, combined with a narrower Democratic margin in the Senate, suggests that any energy legislation that passes the 112th Congress is likely to reflect the kind of log-rolling and incrementalism that has dominated Congressional policy-making during the past decade.

It is anticipated that Canadian diplomats, provinces and business interests will attempt to ensure that any legislation meets at least four key tests. Canadian governments will seek parallel treatment of U.S. coal interests and Canadian hydrocarbon resources exported to the United States, particularly in the application of regulatory mandates with the potential to restrict future production levels. Canadian diplomats will pursue similar treatment of other U.S. and Canadian industries involved in extensive cross-border trade. Federal and provincial governments will seek some acknowledgement of Canadian hydro-electric exports in the framing of renewable energy portfolio standards. Finally, Canadian

officials will pursue alliances to persuade Congress to avoid border measures, while structuring domestic regulatory measures to facilitate parallel cost structures for industries on each side of the border.

Such policy parallelism is not uncommon in cross-border policy issues – particularly when broad policy similarities mask differences in the institutions and technical policy regulations that have been negotiated in each country – especially in light of provincial control of provincial energy utilities and natural resource development (Gattinger and Hale 2010).

Canadian Efforts to Manage Interdependence: Oiling the Machine or Sand(s) in the Gears?

The most significant result of recent American political shifts has been the growing conflict between the pursuit of “energy security” and environmental concerns related to growing Canadian oil sands production – much of which is exported to the United States. Under the Bush administration, the growth of oil sands production was viewed as a significant contribution to U.S. energy security given ongoing declines in conventional oil production in both countries. The Obama administration, while far from hostile to oil sands development, has signalled that ongoing improvements in Canadian regulatory standards and environmental outcomes may be necessary to avoid further hostile action by Congress (*Calgary Herald* 2010).

U.S. and Canadian environmental groups, led by the Washington-based National Resources Defense Council, have made Alberta’s oil sands a major symbolic target in their public relations, lobbying of Congress, and litigation within the United States – often characterizing them as the “dirtiest oil on earth” (Chastco 2010). A 2007 federal energy bill sought to restrict U.S. Defense Department purchases of non-conventional oil – a measure primarily seeking to curb American shale oil production, but also imports of oil-sands derived crude oil that exceeds conventional oil’s “lifecycle” GHG emissions (McKenna and Parkinson 2008). These tactics appear to be part of a broader strategy of promoting the use of a wide range of regulatory tools to limit oil exploration and development in North America, thus forcing up prices and making the development of alternative energy resources more economically viable. While the combined efforts of Canadian diplomats, energy interests, and the

U.S. Defense Department failed to reverse “Section 526” before the 2008 Presidential election, they did secure extensive Congressional support.

American environmental groups have sought to make regulatory approval for new pipeline projects conditional on Canada’s “work(ing) with the U.S. to transition to a clean energy economy”, while supporters of oil sands developments have emphasized the role of U.S. oil imports from Canada as a key element in American energy security (Chastko 2010; Tait 2010a). The former have funnelled almost \$6 million to Canadian environmental groups and other political activists to support policy change in Canada between 2003 and 2009, most of it related to challenging oil sands development. The latter have also cultivated links with members of Congress on committees responsible for energy and defense policies (Krause 2010; Libin, 2010a; Laforest 2010).

Other current debates include those over the inclusion of California-style low carbon fuel standards (LCFS) on oil sands imports, thus putting them at a significant price disadvantage for U.S. refineries seeking to work within future GHG-emissions quotas. These issues are frequently caught up in parallel American debates over the trade-offs between energy security and policies promoting a substantial shift in U.S. energy consumption to “renewable” fuels (Donnelly 2009; Levi 2009; McCarthy 2009b). For this reason, Canadian diplomats in Washington and provincial governments actively promote visits by American policy-makers, congressional staff, journalists and other opinion-leaders to inspect the oil sands, related reclamation efforts, and carbon capture facilities as part of an ongoing public relations offensive to counter the efforts of the anti-oil sands lobby (Barnes 2009; C. Clark 2009; Taber 2009).

Obama administration officials have acknowledged the oil sands’ importance for U.S. energy security. In August 2009, Deputy Secretary of State James Sternberg formally authorized the building of Enbridge’s “Alberta Clipper” pipeline to carry oil sands crude to U.S. Midwest. State Department officials also appeared to have rejected environmental challenges to the building of the Keystone pipeline carrying oil sands oil to refineries in Texas – while tightening proposed environmental standards on the project. However, it remains to be seen how these pressures will be resolved amid the generally opaque relationships between the White House

and Congress (C. Clark 2009a; Zeller 2009; Goodman 2010; Libin 2010; Alberts 2010).

Major projects can also raise a wide range of local environmental and land use issues along rights of way or transportation corridors – particularly when the agendas or practices of major firms conflict with those of local landowners, residents and environmental groups. Legal challenges to road hauling permits in Idaho have blocked the shipment of 35,000 tons of mining equipment across mountain roads to facilitate the \$8 billion Kearl Lake oil sands project in Alberta for as much as a year (Millman 2010), while the Keystone pipeline crossing the Great Plains faces challenges from landowners in several states.

One side effect of these battles is to increase political and regulatory pressures on Canadian-based oil firms to strengthen environmental safeguards and performance in oil sands production, both in response to local demands and to provide greater credibility when engaged in public relations battles in the United States. Another effect is to increase political incentives within Canada for the cultivation of non-U.S. investments in oil sands development and the building of pipelines to the Pacific coast that would allow the diversification of oil sands exports to markets including China and South Korea – although such alternatives are not without their own political, economic and regulatory challenges (Fekete 2010; Chastko 2010).

Canadian Efforts to Manage Interdependence: Electricity Sector Policies

The development of cross-border relations in the electricity sector since the mid-1990s differs significantly from that in the oil, natural gas, and related pipeline sectors for several reasons. First, while driven in part by market forces, these forces have been shaped in large measure by U.S. regulatory developments and by the development of cross-border cooperation among electric utilities and related interest groups.

Moreover, jurisdictional asymmetries greatly complicate cross-border policy-making on both energy and related environmental policy questions. Formal cross-border policy relations are managed by the U.S. Department of Energy. As noted above, the Federal Energy Regulatory Commission (FERC) has responsibility for designing and implementing detailed regulatory measures. However, state and local governments continue to play a significant role in both the

regulation of in-state energy production and related environmental and land-use regulations. So does the electricity industry, both as clusters of economic interests, and through self-regulatory organizations such as the North American Electric Reliability Corporation. Furthermore, the very different scales of American states and Canadian provinces have contributed to the regional organization of Electricity Reliability Organizations (reorganized as “Regional Entities” in 2006-07) across national boundaries (and, frequently, across state boundaries in the United States).

These developments reflect both FERC’s efforts to promote competitive regional energy markets in the United States since the early 1990s (Doern and Gattinger 2003) and the longstanding efforts of several major Canadian utilities to cultivate U.S. markets to finance the construction of expanded capacity. They also reflect regionalized patterns of interdependence in the organization of electricity grids, the concertation of technical coordination by utility stakeholders on both sides of the border, and lessons drawn from the massive August 2003 blackout that affected 40 million people in the Midwestern and northeastern United States and 10 million Canadians between Manitoba and Nova Scotia (North American Electric Reliability Council 2006).

However, despite the growth of long-distance and cross-border transmission in recent years, both countries remain more or less self-sufficient in their production and consumption of electricity. Gross U.S. imports of electricity, mainly from Canada, averaged 1.1 percent of U.S. power generation between 1996 and 2007, but only 0.66 percent when seasonal power exports to Canada and Mexico are taken into account (U.S. Energy Information Administration 2009, 2009a, 2009b). Canada exports about 10 percent of its electricity production to the United States – but net exports vary widely depending on precipitation and water levels in provinces with significant hydro-electric generating capacity.

FERC regulations have created strong incentives for Canadian utilities, especially those in Quebec, Ontario, Manitoba, and British Columbia which accounted for 97 percent of exports in 2008, to provide “open access transmission services” to American utilities in return for access to U.S. markets. The initial effects of deregulation in the United States, reinforced by technological changes that made small-scale and “distributed” power generation technically and economically viable, were to reduce prices in some jurisdictions,

prompting Canadian industries to pursue comparable policies, especially in high cost jurisdictions such as Ontario (Doern and Gattinger 2003: 35-36, 85-86). However, substantial differences remain in rules governing the marketing of electricity to “retail” clients, and in energy sources used for power generation – which vary widely among provinces (as among American states).

These factors contributed to the growing cooperation between American and Canadian regulators, and between American and Canadian electric utilities. Canadian utilities had played an active role in the National Electricity Reliability Council, an American standards-setting body, for some years before its reorganization as the North American Electricity Reliability Council (NERC) in the late 1990s.

The energy price shocks that hit the United States after 2003 and growing state-level pressures to address greenhouse gas emissions as part of a broader climate change strategy have led to pressures for further policy convergence. The Canadian Electricity Association has worked closely with its U.S. counterpart, the American Edison Institute, on rules governing cross-border electricity trade and the imposition of mandatory standards governing electricity transmission in the United States (an approach first imposed in Ontario in the late 1990s). Once NERC was recognized as the standards setting body in the United States, it has negotiated a series of separate memoranda of understanding with Canadian provinces to ensure a convergence of standards in their respective markets (North American Electricity Reliability Corporation 2009).

Growing interest in the development of new cross-border energy corridors has led Canada’s National Energy Board to work closely with the U.S. Department of Energy. These discussions are complemented by regular and extensive discussions at regional cross-border forums for coordination of cross-border policies by state and provincial governments: especially the Council of New England Governors and Eastern Canadian Premiers, the Pacific Northwest Economic Region (PNWER), which also includes representatives of major firms with operations in both countries, and the Midwest Legislative Conference.

Overall sources of electricity generation differ substantially both between and within the two countries (see Table 3). These differences have significant environmental implications – particularly with the prevalence of coal-fired generation in much of

the U.S. south, midwest, and mountain states, as well as in Alberta and Saskatchewan, and the mix of incentives for fuel substitution to be contained in eventual Congressional legislation. Proposals to internalize the full environmental cost of hydrocarbon use have the potential to create sizeable transfers of wealth and income within each country – greatly increasing the political challenges of designing and implementing proposed emissions caps, and a U.S. or North America-wide cap-and-trade system (Campbell and Kreutzer 2009; M.K. Jaccard & Associates 2009).

Table 3
Energy Sources for Electricity Generation in the United States and Canada (2007)

Percent	United States	Canada
Coal	48.5	18.4
Natural Gas	21.6	6.4
Nuclear	19.4	15.1
Hydro-electric	5.8	59.0
Other renewable	2.5	0.5
Petroleum	1.6	1.2
Other gases	0.3	na
Other	0.3	1.4

Source: U.S. Energy Information Administration (2009a), Figure ES1; Statistics Canada (2009, 2009a).

Another challenge to effective policy coordination is the stronger legal requirement for public participation in environmental policy-making in the United States, which Norman and Bakker (2010: 204) have contrasted to the greater “government-to-government” culture of policy making in Canada. These realities – and the growing number of societal stakeholders likely to be engaged with the re-negotiation of the Columbia River Treaty after 2014 have led some observers to suggest that Canadian decision-makers, especially in British Columbia, would be well-advised to await the outcome of American policy processes before presenting a detailed negotiating position (Sanderson 2009).

CONCLUSION

The integration of North American energy markets and infrastructure since the mid-1980s may have been facilitated by governments in both the United States and Canada. However, it has been largely the product of market forces and the previous inability of governments to overcome perverse economic incentives, political gridlock and domestic supply shortages in the United States. Current debates over climate change and the restructuring of energy industries recall many features of these earlier disputes.

Although the Obama administration has been modestly receptive to developing common policy goals with Canada in certain areas, no President in recent years has possessed the political capital or influence to lead or drive Congress where its leaders do not want to go. “Legislative pragmatism” – the log-rolling and special interest payoffs necessary for Congress to approve the multi-dimensional but largely incremental energy bills of the past decade – has left some opportunities for Canadian governments to advance their interests at the margins. However, in the short- and medium-term, it is unlikely to produce what one astute observer has described as “policy pragmatism” – measures that will actually be effective in achieving broader policy objectives. (Brooks 2009: A21)

Substantive bilateral cooperation on the design and implementation of complementary energy and/or environmental policies in recent years has generally been limited to administrative measures such as those for coordinating cross-border pipeline and electricity corridors discussed above, based on the market-driven policy changes of the 1990s or, in some cases, Canadian adaptation of U.S. initiatives affecting industries characterized by the substantive integration of production and distribution processes. These measures, which are most advanced in the electricity (and “downstream”, in the automotive) sector (see above in the preceding section), have accommodated the interests of major industry stakeholders to some extent, but are increasingly subject to the cross-fire of competing regulatory processes and demands from competing societal interests.

The diversity of energy demand and energy sources within and among the nations of North America make it unlikely that a single energy policy will emerge between the United States and Canada, let alone Mexico – whatever the competing aspirations of energy industries, environmentalists, or ordinary consumers (Dukert 2007:

151). Continuing U.S. dependence on energy imports, and the visible unwillingness of American consumers (and taxpayers) to sacrifice either their lifestyles or living standards to finance the enormous investments necessary to achieve substantial energy independence make it likely that the United States will continue to depend on Canadian energy imports. They also suggest the economic benefits to both countries of pursuing greater energy efficiency through the more efficient organization of existing energy infrastructure – including both refineries and electricity transmission lines– and the cooperative development of new technologies that can both enhance energy efficiency and mitigate levels of GHG emissions.

The two greatest threats to such cooperation are likely to be the temptation of the larger power to impose unilateral policy decisions on its smaller neighbour and 1970s-style regional divisions within Canada that undercut the latter's capacity to negotiate effectively with the United States. These challenges suggest that Canadian governments – both federal and provincial – must develop a three-level strategy to engage their American neighbors constructively, while reducing the leverage of American environmental interest groups to disrupt the bilateral relationship. Ironically, regional divisions on cap-and-trade and related environmental legislation in the United States create opportunities to do just that.

Internally, Canadian governments need to accommodate the diversity of provincial resource endowments and fiscal measures introduced to facilitate the implementation of climate change strategies by working out cooperative approaches to climate change that allow provinces the fiscal leverage necessary to finance the diversification and renewal of their own energy industries, whether through British Columbia's "Green Tax Shift", the accommodation of technology funds in Alberta and Saskatchewan, or regional carbon exchanges in Ontario and Quebec. The Harper government's suggestion of bridging these measures with a strategy that links Canadian measures to the costs of industry-specific adjustments in the United States (Prentice 2009a) has the potential to limit the use of trade remedy measures – although it should seek formal U.S. recognition of such arrangements in a bilateral (or, if feasible, trilateral) trade agreement with the United States (and Mexico). Central to any such agreement should be the negotiation of an arms' length, binding dispute regulation mechanism similar to that negotiated under the Softwood Lumber Agreement of 2006.

Under current circumstances, it is unlikely that Congress will provide any President with the negotiating authority to conclude such an agreement under the equivalent of “Trade Negotiating Authority” (fast-track) until it has established a legislative framework – something that cannot be taken for granted before the 2012 Presidential elections. To increase Canada’s leverage in any such negotiations, Canadian (federal and provincial) governments should encourage non-North American investment in the measured expansion of oil sands production and related infrastructure development – including a pipeline to its West Coast – as a signal that continued efforts by U.S. environmental interests to restrict Canada’s ability to develop its own resources can be balanced through increased exports to other countries. Any such development should be accompanied by enhanced environmental standards, appropriate regulatory controls over corporate governance, and increased provisions for resource upgrading in Canada.

At the same time, both federal and provincial governments should continue to cooperate with their American counterparts on the development of new technologies and alternate energy resources – including an expanded electricity grid that could facilitate the integration of widely dispersed wind and solar generation facilities across national borders. Cooperative cross-border regional and economic linkages are the most effective way of mobilizing shared interests to counter protectionist measures, and encourage the development and renewal of more sustainable energy industries.

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