

NORTH AMERICA'S UPHILL BATTLE ON CLIMATE CHANGE AND ITS IMPLICATIONS FOR THE NORTH AMERICAN TRADING SYSTEM

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Introduction

As the debate over climate change legislation brewed in the US House and Senate in 2009 and early 2010, its implications for heavily traded manufacturing were hotly contested. Concerned that higher energy prices would cause firms to produce these goods outside the United States instead of complying with US regulations, lawmakers offered free emissions allowances to compensate domestic firms and threatened to require importers from countries that did not meet US climate standards to purchase emissions allowances at the border.

A year later, passage of US climate legislation now seems all but impossible. As the United States has backed away from its initial ambitions, North America as a whole seems likely to follow suit. Aside from anemic federal regulation under the US Clean Air Act, climate change legislation has been left up to states and provinces for the time being.

The fragmentation of climate change policy has its own implications for North American trade and investment. Though the scale is now far smaller, regulation at the provincial level makes it *more* likely that emissions could migrate to other areas. States and provinces also have less capacity to adjust their transmission infrastructure to ramp up renewable electricity production at least cost. This does not mean that state and provincial policy is not crucial to North

America's climate change mitigation goals – for now, it seems that state policy is the only feasible means of working toward climate change mitigation in North America. However, this is not the best possible situation. Federal climate policy, though jettisoned due to concerns about jobs and competitiveness, would actually be more effective at reducing emissions without adverse trade impacts.

The volume of North American energy trade is large. The United States derives about a fifth of its oil from Canada, and in 2008 about two thirds of the crude oil produced in Canada was shipped to the United States.¹ Canada is the largest supplier by far of energy-intensive manufactures to the United States, including steel (20 percent of US imports), cement (53 percent of US imports), paper (52 percent of US imports), and aluminum (55 percent of US imports). In total, Canada exported USD 44 billion of highly traded, energy-intensive products to the United States in 2008 (Hufbauer and Kim 2009).²

As a consequence, it is important to understand what state legislation means for trade in energy and energy-intensive goods. This paper explores this issue below.

Prospects for North American action

Federal

Prospects for comprehensive federal climate change legislation in North America are not bright. Though the United States seemed promising in 2009, with the passage of the Waxman-Markey bill through the House of Representatives, legislation stalled in the Senate in 2010 as partisan acrimony intensified and the political mood soured on cap-and-trade. To cap it off, the Democratic Party, which is far more supportive of climate change legislation, experienced heavy losses in Congressional midterm elections. There is little likelihood in the near future that Republicans in



* Peterson Institute for International Economics, Washington DC. This article draws heavily on the forthcoming book, *NAFTA and Climate Change* by Meera Fickling and Jeffrey J. Schott, to be published by the Peterson Institute for International Economics in early 2011.

¹ Data obtained from the Energy Information Administration and Statistics Canada, 2009.

² Based on products scheduled to receive allowance rebates under the Waxman-Markey and Kerry-Lieberman bills.

the House and the Senate will rally around a key Obama initiative that most of them campaigned against. Even initiatives such as a renewable portfolio standard that once seemed politically safe now seem less likely.

Environmental advocates have turned to new channels. One of the chief tools in the Obama Administration's arsenal is the Clean Air Act, which is administered by the Environmental Protection Agency (EPA). In 2007, the Supreme Court ruled that the EPA had the authority to regulate greenhouse gases (GHGs), which cause climate change, under the Act.³ Technically, the EPA could achieve substantial GHG emissions reductions through this approach (Bianco and Litz 2010) – but this would involve implementing a much more far-reaching regime than Congress is likely to allow. Already, a number of resolutions have been introduced in Congress to limit the EPA's powers. These measures have so far been kept at bay, but the incoming Congress promises to be even less sympathetic to the EPA than before.

So far, EPA regulation has been modest. The EPA has announced that it will require new sources and major modifications producing more than 75,000 tons of CO₂e per year – in other words, new projects that would produce a large amount of emissions – to obtain Prevention of Significant Deterioration (PSD) permits. The PSD permitting system is administered on a state-by-state basis. In November 2010, the EPA released its proposed guidance to the states for PSD permitting. The document indicates that a relatively lenient approach will be taken toward coal-fired power plants, relative to the possibilities. Energy efficiency improvements are on the table, but the guidance document discourages states from requiring coal-fired power plants to switch to coal or biomass or implement carbon capture and sequestration.⁴ These energy efficiency improvements are not expected to produce substantial emissions reductions; Richardson *et al.* (2010) estimate that modest energy efficiency improvements in coal plants could reduce GHG emissions by 3 percent.

If the United States is not able to pull together a program to substantially reduce GHGs, Canada is unlikely to do so either. Over the past couple of years, the Canadian government has transitioned from at least a nominal policy-maker on climate change to a

taker of policy from the United States. In 2007, the Canadian government released *Turning the Corner*, a relatively ambitious plan that aimed to reduce emissions by 20 percent from 2006 levels by 2020. Subsequently, citing fears of lost industrial competitiveness, it has backed away from this plan and instead promised to emulate whatever the US action turned out to be. By early 2010, Canada had shifted so far toward this stance that its Copenhagen pledge read, “17 percent, to be aligned with the final economy-wide emissions target of enacted US legislation” (UNFCCC 2010a).

The host of the 2010 COP 16 in Cancun, Mexico has shown international leadership on climate change. At the 14th session of the UNFCCC Conference of Parties (COP 14) in Poznan, Poland in December 2008, it announced its intention to reduce emissions 50 percent from 2002 levels by 2050, contingent upon developed-country assistance. In the run-up to Copenhagen, Mexico proposed a ‘Green Fund’, a well-received plan to provide 10 billion US dollars per year toward mitigation, adaptation, and technology transfer. And its Copenhagen submission committed to reduce emissions 51 MMT below business-as-usual levels by 2012 (equivalent to about a 6.4 percent cut) and 30 percent below business as usual by 2020 (equivalent to about 250 MMT of carbon dioxide-equivalent) – see UNFCCC (2010b).⁵

Mexico has been active at home as well. Its 2009 Special Climate Change Program (PECC) lays out a number of actions toward meeting its 2012 Copenhagen target, as well as the agencies responsible for their implementation, the Secretariat of Environment and Natural Resources (SEMARNAT) and the National Energy Secretariat (SENER). Proposed actions include management of landfill gas; expansion of sustainable forest management, including expansion of the payment for environmental services scheme; self-supply schemes for renewable energy; and wind power generation by the Federal Electricity Commission (CFE).

However, all of Mexico's ambitious undertakings are conditioned upon adequate financing from developed countries.⁶ And foreseeable funding sources depend at

³ Commonwealth of Massachusetts v. Environmental Protection Agency.

⁴ Carbon capture and sequestration technology is not yet commercially viable.

⁵ The 2012 percentage emissions reduction estimate and the 2020 absolute emissions reduction estimate are calculated by the authors based on business-as-usual emissions projections in Centro Mario Molina (2008).

⁶ Mexico's commitment to reduce emissions 30 percent by 2020 is conditioned upon “the provision of adequate financial and technological support from developed countries as part of a global agreement” (UNFCCC 2010b), and its Poznan commitment is also contingent upon developed country financing.

least in part on the United States. US Secretary of State Hillary Clinton provided the impetus behind the USD 100 billion climate change fund promised at Copenhagen, and the United States will be expected to make a substantial contribution to this fund. A US cap-and-trade program with offset and allowance trading provisions could provide additional financial incentives for Mexican firms to use cleaner technologies and production methods. While Mexico might benefit from selling renewable electricity and carbon offsets to California, which is implementing climate change legislation on a far smaller scale, it seems unlikely that the United States Congress will make climate change a high priority in the near future. As a consequence, the United States cannot be counted on as a key source of funding in the near future.

State

Despite the dismal outlook described above, climate change regulations cannot be written off just yet. Action is occurring at the sub-federal level. The Regional Greenhouse Gas Initiative (RGGI), a cap-and-trade system for electricity emissions operated by a group of Northeastern US states, has been active since September 2008. The RGGI aims to reduce emissions produced from electricity by 12 percent by 2020. While emissions reductions are not required until 2015, auctions have been taking place since the program became active.

California is creating a cap-and-trade program and recently released its proposed regulations. This regulation is part of the Western Climate Initiative (WCI), a group of US states and Canadian provinces that have promised to reduce their economies' emissions by 15 percent from 2005 levels by 2020. The program will cover 85 percent of the state's emissions and will take effect in 2012 for electricity generators and large industrial sources and 2015 for transportation, residential and commercial fuels. Other parties that do not fall into these categories can voluntarily opt into the emissions trading program (Fickling 2010).

A few Canadian provinces, together comprising about half of Canada's emissions, also appear on track to implement cap-and-trade programs under the WCI banner by 2012. British Columbia, Quebec, and Ontario have all passed bills authorizing cap-and-trade systems, and British Columbia released draft regulations in October 2010 (Fickling 2010).

In addition, states have implemented a number of performance standards. One of the most prominent is the renewable portfolio standard, which requires utilities to procure a certain percentage of total retail electricity sales from renewable sources. This standard has been implemented in thirty US states and a handful of Canadian provinces. Target renewable percentages range from California's standard, which aims to meet a third of the state's electricity demand through renewable resources by 2020, to Texas's standard, which requires utilities to procure 5 percent of electricity from renewable sources by 2015 (Fickling 2010).

Sources that are most often eligible to fulfill state renewable energy standards include wind, solar, geothermal, landfill gas, and ocean energy. Hydro-power, biomass, and municipal solid waste tend to be given lower priority under a renewable portfolio standard, if such sources are eligible at all. Renewable portfolio standards are often combined with energy efficiency resource standards, which require utilities to reduce demand through energy efficiency measures (Fickling 2010).

Another measure that has gained some traction in the United States is the low-carbon fuel standard (LCFS), which is currently being piloted by California. The LCFS is intended to replace the state's ethanol blending requirement, which has been criticized for failing to discriminate between relatively GHG-intensive bio-fuels such as corn-based ethanol and lower-impact bio-fuels such as sugarcane and cellulosic ethanol. Instead, the LCFS requires the California Air Resources Board (CARB) to assign a GHG intensity value to each transport fuel sold in California.

To obtain these values, CARB must quantify the GHGs emitted over the lifecycle of a fuel, from the extraction of the raw materials used to produce the fuel to the burning of the fuel in one's car. The standard then requires fuel retailers to reduce the GHG intensity of their fuel sales by 10 percent by 2020. Proponents of the standard argue that this process emphasizes reducing carbon emissions rather than promoting American corn growers, although critics argue that CARB uses a flawed methodology to calculate lifecycle intensity values (Fickling and Schott 2011).

Trilateral

At least until Canadian Environment Minister Jim Prentice left office in November 2010, trilateral dia-

logue on climate change policy benefited from a close working relationship among the three environment ministers, as well as a commitment to trilateral energy cooperation among heads of state. After nearly a decade of inaction on climate change policy, the North American Leaders' Summit in August 2009 refocused attention on sustainable energy issues and instructed officials to develop a trilateral working plan for cooperation on energy science and technology. North American environmental ministers also committed to improving the comparability of data gathering and inventories for mitigation and adaptation projects at the NAFTA Commission for Environmental Cooperation (CEC) ministerial in August 2010.

Bilateral arrangements were also advanced. In 2009, US President Barack Obama and Canadian Prime Minister Stephen Harper established a Clean Energy Dialogue to coordinate on carbon capture and storage research and modernization of the electric grid. Obama and Mexican President Felipe Calderon created the US-Mexico Bilateral Framework on Clean Energy and Climate Change, agreeing to collaborate on low-carbon technology development and capacity building, as well as adaptation to climate change.

A substantial roadblock is the low level of funding for climate change activities within NAFTA environmental institutions. The CEC amasses environmental information, provides recommendations on trilateral environmental issues, and promotes environmental law enforcement – all with a 9 million US dollar budget. The amount of money allocated to the CEC has remained unchanged since its creation in 1994, despite inflation and exchange rate movements (the budget is expressed in dollars, while the CEC is physically located in Canada) that have decreased the real value of this amount. Although the CEC has been effective for its size, its budget constrains the scope of its operations (Hufbauer and Schott 2005).

The North American Development Bank (NADB) and Border Environment Cooperation Commission (BECC), two interrelated institutions that fund environmental projects on the US-Mexico border, receive far more money in the form of cash and loan guarantees. The capital base of the NADB is 3 billion US dollars per year (Hufbauer and Schott 2005). Lending started out far below this capacity due to high interest rates and a cumbersome application process, but the NADB/BECC has improved markedly in recent years,

offering subsidized loans to needy communities and grants from paid-in capital (Kass and McCarroll 2008). Total loans disbursed have skyrocketed from USD 11 million as of 2002 to USD 1.1 billion as of September 2010 (NADB 2010). While the scope of the NADB/BECC has officially expanded to include renewable energy and energy efficiency, however, these issues still make up a tiny portion of the institutions' overall lending portfolio (NADB 2010).

What does this mean for North America?

State policies are an improvement over no policy. State environmental regulation has historically served as a 'laboratory for innovation', paving the way for more stringent federal environmental policy than would otherwise be adopted and allowing ideas to be tested on a small scale before they are implemented nationally. A prominent recent example is California's 'Pavley' automobile tailpipe emissions standards, which required automakers to achieve a fleet average fuel efficiency of 36 miles per gallon. After fourteen other US states and four Canadian provinces adopted these requirements, the federal governments of the United States and Canada implemented them on a national scale.

However, the fragmentation of climate policy is ideal neither for the climate nor for the North American trading system. A robust network of state cap-and-trade regimes could generate substantial reductions. But the group of states likely to adopt a cap-and-trade approach – a handful of Northeastern states and Canadian provinces, plus California – cannot produce anything close to the amount of reductions promised by the United States and Canada in Copenhagen.

State climate policy is more susceptible to so-called 'carbon leakage'. Leakage can occur at either the producer or the consumer level. Climate change policy aims to make it more expensive to produce and consume carbon-intensive goods. Because climate policy is not globally integrated, firms that produce these goods could simply move to unregulated jurisdictions rather than reduce their emissions. Likewise, envision a firm selling two comparable products, one clean and one dirty, to two places, one with regulations and one without. The firm could simply sell its dirtier good to consumers in the unregulated area and its cleaner good to customers in the regulated area, without necessarily changing its overall production of each good.

The extent to which leakage could occur depends upon a host of factors, including the extent to which energy prices increase, the energy intensity of in-state industries, and the ease with which firms can shift production and sales. States and provinces that are likely to adopt comprehensive climate change legislation do not tend to have high concentrations of energy-intensive, trade-exposed industries. However, states are particularly economically integrated with each other, so production and consumption may shift more easily to unregulated areas than if policy were adopted at a national level. Modeling of state cap-and-trade policies produces mixed results as to the probability of leakage according to RGGI (2007) and WCI (2008).

In addition, climate policy that is limited to only a handful of states and provinces could worsen the already existent disparities in energy consumption between leading and laggard regions of North America. The difference between the GHGs emitted by California and Wyoming per capita is large, particularly when it comes to the type of electricity used by the two states. Carbon-intensive production is also concentrated in certain states and provinces, particularly in the American Midwest and Southeast and the western Canadian provinces. These regional differences already pose frictions for North American policymakers, who have to construct national climate change regimes without imposing a disproportionate economic burden on any one region (Fickling and Schott 2011). If some states make significant progress before others catch up, this could exacerbate the difficulty of passing national legislation.

There are difficulties coordinating various state standards. Whereas some standards such as automobile and fuel standards are modeled off California's, others such as the renewable portfolio standard are designed on a state-by-state basis, with little agreement as to what constitutes renewable energy or where it must come from in order to meet a particular standard. As a result, it is difficult to trade credits across regions – even though energy from a different region might achieve the common goal of reducing emissions.

Economies of scale for renewable generation are less easily captured through state action. When renewable electricity is generated over a wide area, rather than in a single locality, it is less susceptible to changes in weather patterns. States also cannot single-handedly create the infrastructure necessary to take full advantage

of renewable energy. Expanded transmission would allow renewable electricity to be sold from areas with high potential to areas with lower potential. A recent US Department of Energy report points out that wind power could comprise 20 percent of national electricity generation if, among other things, transmission capacity were significantly expanded (Department of Energy 2008). A smart grid that moves some electricity usage from peak hours to off-peak hours can also help 'soak up' excess wind power generated during off-peak hours. Such a project must be coordinated among many states; one state alone cannot revamp the current antiquated grid.

State standards, trade politics and trade law

Recent US federal cap-and-trade proposals included widely debated measures to protect the competitiveness of domestic manufacturing. Most federal legislation introduced after 2007 included a so-called international reserve allowance program (IRAP), which required importers to purchase allowances at the border to compensate for the difference between the cost of production at home and the cost of production in unregulated jurisdictions. The IRAP was imposed based on country of origin – imports from countries that had not taken sufficient action on climate change would be subject to the border measure, with exceptions only for least developed countries and *de minimis* emitters. The measure was a significant concern for Canada and Mexico, whose officials feared that their large volumes of carbon-intensive exports could be put at risk.⁷ It was also of questionable WTO legality.

Even though federal US cap-and-trade legislation is stalled for the time being, Canada and Mexico are not off the hook. Carbon tariffs are a response to domestic political pressures from carbon-intensive industries that anticipated a high cost of reducing emissions and therefore feared a loss of competitiveness. As noted above, these pressures were particularly potent because most carbon-intensive industries are disproportionately concentrated in politically important states. If these states fall even further behind others in reducing emissions, this will both increase the total amount of emissions that the United States must eventually eliminate in order to meet its international goals and increase the gap between the cost of national climate policy to leading states and the cost

⁷ For more information, see Schott and Fickling (2009).

of national climate policy to laggard states. Consequently, protectionist pressures could return with a vengeance if and when the United States musters the political will to give cap-and-trade another try.

Although state legislation avoids some of the frictions caused by recent national cap-and-trade proposals, some standards are particularly controversial. Notably, California's low carbon fuel standard separates petroleum into two categories: 'conventional' and 'unconventional'. Whereas conventional fuels are all assigned the same lifecycle carbon intensity value (equivalent to the weighted average carbon intensity of the fuels consumed in California), unconventional fuels such as oil sands crude, etc. are given a separate lifecycle analysis. Unsurprisingly, Canada, which exports 2.5 million barrels of oil sands crude to the United States every day, has expressed its concern that this measure violates WTO rules.⁸

At issue is whether the distinction between oil sands crude and conventional crude is arbitrary or justifiable. In order to defend its standard before a WTO dispute settlement panel, California would have to prove that environmental considerations require oil sands crude to be treated differently from crude recovered via conventional drilling processes. The panel's decision could hinge upon whether oil sands crude is sufficiently more GHG-intensive to merit a separate category. While oil sands crude is about 15 to 20 percent more GHG-intensive than the average conventional crude to produce and use, the difference between it and heavier crudes is narrower (Toman *et al.* 2008).

Other standards have created somewhat less controversy but have nevertheless proved to be sources of friction between states and provinces. Some renewable portfolio standards require qualifying electricity to be produced in state, or exclude certain sources of electricity from qualifying as renewable. Many US state renewable electricity programs have excluded large hydropower, a decision that United States and Canada have long disputed (Rowlands 2009). Ontario's feed-in tariffs for renewable electricity are conditioned upon a domestic content requirement of 25 percent for wind turbines and 50 percent for solar panels. This provision has been challenged in WTO dispute settlement by Japan, the United States, and the European Union. Some states also have require-

ments that are transparently engineered to favor locally important industries; an example is North Carolina, which requires utilities to generate a certain percentage of electricity from swine and poultry waste (Fickling 2010).

Conclusion and policy recommendations

While coordinated federal legislation in the United States, Canada and Mexico would be ideal, this paper offers some modest steps that the two countries could take to coordinate state initiatives. The CEC could function as a clearinghouse for climate change-related data. With modest budgetary increments, this institution could play a significant role in NAFTA climate change initiatives by expanding its database on North American emissions and reporting on new climate initiatives and regulations in each country. In so doing, the CEC could become a North American clearinghouse for monitoring, reporting, and verification (MRV) of carbon credits issued under provincial or regional carbon regimes, which could lower transaction costs of offset projects among the three North American countries. The scope of the NADB could also be expanded to include more projects related to clean energy and energy efficiency.

States and provinces are already discussing the possibility of mutual recognition of carbon credits generated by various regional cap-and-trade schemes, and they should continue to study options for coordinating or integrating these evolving carbon regimes. Policy coordination could facilitate carbon credit trading by ensuring that carbon credits in all jurisdictions represent similar kinds of carbon reductions. In addition, greater coordination among carbon trading regimes could help address concerns regarding 'carbon leakage' that have plagued the implementation of cap-and-trade programs in many states.

Somewhat more controversially, states and provinces may work toward coordinated renewable electricity policies. All parties should agree on how imported electricity should be credited and certified under renewable portfolio standards, both at the federal and state levels. To the extent feasible, states and provinces should harmonize definitions of renewable electricity in order to stimulate development by increasing the fungibility of RECs. Harmonization and expansion of renewable energy credit tracking systems could also widen the geographic area from which renewable credits could be purchased.

⁸ See Energy Information Administration (2010) and letter from Canadian Ambassador Michael Wilson to Mary Nichols, 14 November 2008 (http://www.canadainternational.gc.ca/washington/events-evenements/LCFS_Nichols.aspx?lang=eng).

The North American countries should shield climate change taxes and regulations from claims under the indirect takings provisions of NAFTA Chapter 11. Chapter 11 requires governments to provide compensation to investors for measures that are ‘tantamount to expropriation’. To date, Chapter 11 cases have assumed a limited scope for environmental laws’ constituting expropriation. Climate change laws will most likely have much broader economic effects than prior environmental legislation, and the scope of potential claims under NAFTA Chapter 11 due to climate change laws and regulations could be orders of magnitude greater than those filed in the past. The potential for such Chapter 11 litigation against climate change laws could slow the implementation of measures designed to mitigate GHG emissions and adversely flows of trade and investment in the region.

These measures would increase the efficiency of state and regional climate change regulations. However, they are no substitute for a comprehensive national approach to climate change in both countries. In order to ensure the best policy outcome, Obama and Harper should work toward a national cap-and-trade or carbon tax bill.

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