



Setting the NAFTA Agenda on Climate Change

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When the North American Free Trade Agreement (NAFTA) entered into force 15 years ago, environmental issues were an afterthought appended to a side accord, the North American Agreement on Environmental Cooperation (NAAEC). Today, environmental problems loom large on the global agenda, and climate change, in particular, ranks among the top issues on the North American agenda as the leaders of the United States, Canada, and Mexico convene in Guadalajara in August 2009. This policy brief examines the implications for NAFTA of national policies in the three countries to reduce greenhouse gas (GHG) emissions and suggests steps that the partner countries can take together to further both their economic and environmental goals.

STARTING FROM BEHIND

Climate change issues were not on the radar of the trade officials who negotiated the NAFTA in the early 1990s. During NAFTA's early formative years, the issue was only briefly vetted

in the NAAEC's Commission for Environmental Cooperation while the three countries participated in the drafting of the Kyoto Protocol, which committed developed countries to begin to lower their aggregate emissions and to help developing countries develop and finance GHG mitigation strategies. The nascent NAAEC initiatives foundered amid strong opposition in the US Congress to the Kyoto Protocol.¹ Neither the Clinton nor the Bush administrations submitted the treaty for ratification. Canada did ratify the Kyoto Protocol, but its subsequent actions on climate change have been very limited.

Absent federal action, various US states and Canadian provinces pursued their own climate change policies (Fickling 2009). These have not been sufficient, however, to stem large emissions increases in all three NAFTA countries. In the United States, GHG emissions rose by 17 percent between 1990 and 2005. Canada's performance was even worse, a 26 percent increase over 1990 levels. Mexico's emissions, though still low on a per capita basis, increased by 37 percent during the same period (table 1). All three NAFTA countries, therefore, have much lost ground to recover—a task made all the more difficult given the current sharp economic downturn.

Fortunately, all three countries now recognize the imperative to start the long-term process of substantially reducing GHG emissions. President Obama ranks climate change among his top priorities. The US House of Representatives has already passed the American Climate and Energy Security Act (ACESA)—sponsored by House Energy and Commerce Committee Chairman Henry Waxman (D-CA) and Representative Edward Markey (D-MA)—by a narrow vote (219-212). This legislation sets out emissions targets likely to be included in the final bill that emerges from the Senate-House conference. The overall goal of the United States under ACESA is to reduce emissions 20 percent from 2005 levels by 2020 and 83 percent from 2005 levels by 2050. In comparison, Canada's current climate change plan, Turning the Corner, aims to reduce emissions 20 percent below 2006 levels by 2020 and

1. Although the United States signed the Kyoto Protocol, the Byrd-Hagel Resolution passed by the Senate in July 1997 by a vote of 95-0 clearly indicated that the treaty as negotiated would fail in Congress.

Table 1 Greenhouse gas emissions (million metric tons)

Country	1990	2005	Percent change, 1990–2005
United States	5,975	6,964	17
Canada	579	732	26
Mexico	460	630	37
World	30,055	37,767	26

Source: Climate Analysis Indicators Tool (CAIT), World Resources Institute, 2009, available at <http://cait.wri.org> (accessed on July 30, 2009).

70 percent below 2006 levels by 2050. However, Canada is waiting to see what the United States does on climate change before implementing its plan (which will probably closely approximate the US policy). Mexico also has set ambitious targets for GHG mitigation, committing in December 2008 to reduce emissions 50 percent below 2002 levels by 2050.

MANAGING REGIONAL DIFFERENCES

The success or failure of climate policy in all three countries ultimately depends on the ability of regional economies to adapt to the policy. Due to disparate energy sources, industrial concentrations, and political economy, countries, states, and provinces face various challenges in creating politically viable, environmentally sound climate policies with minimal economic dislocation.

Sources of energy differ widely both among and within countries. Overall, the United States relies most heavily on the most carbon-intensive electricity production method, coal, which comprises about half of American electricity. Mexico also relies heavily on fossil fuels, obtaining 55 percent of its electricity from petroleum and 32 percent from natural gas. Canada is the only country of the three that currently gets a large share of its electricity, almost 60 percent, from hydropower.²

Fossil fuel extraction and use tend to be concentrated in certain regions in the United States and Canada. US states such as Wyoming and West Virginia generate more than 95 percent of electricity from coal; others, such as Maine and California, generate 2 percent or less electricity from coal. The spread of electricity sources is just as stark in Canada. While Alberta relies on coal-fired electricity for almost three-fourths of its generation, provinces such as British Columbia and Manitoba derive over 90 percent of their electricity from hydropower.

2. Data are from Energy Information Administration and Statistics Canada.

Among US regions, carbon-intensive industries comprise a greater percentage of GDP and employment in the midwest and the southeast (Fickling and Schott, forthcoming). Coal extraction is a major source of revenue in Appalachian states such as West Virginia. Not surprisingly, congressional representatives from the midwest and the south tend to take a pessimistic view of the effect of carbon pricing on their states' economies. Similar regional differences complicate Canadian politics; some provinces such as Alberta and Saskatchewan depend heavily on oil production for economic growth and thus have sharply different priorities with regard to mitigating GHG emissions than eastern provinces (Government of Saskatchewan 2008).

In the United States, the Democratic Congress and President Obama recognize the need to drastically reduce GHGs over the long run. However, they face strong political pressure to avoid sharp price increases for energy and energy-intensive products that would hurt consumers and damage the competitiveness of local industries. Regional differences exacerbate this problem. Thus the big challenge facing political leaders is how to design climate policies that limit costs to consumers and industry without significantly dampening incentives to adapt and conserve. At this point in the US legislative process, politicians are still struggling to find a delicate balance between securing enough political support for passage and maintaining the environmental integrity of the legislation.

Canadian policy faces cross-cutting environmental and economic interests pitting climate change objectives against the exploitation of natural resources, especially oil sands. In both areas, Canadian officials are concerned that their policies may create frictions with their NAFTA partners that could affect regional trade and investment. The Harper administration wants to encourage development of Alberta's oil sands resources and has been concerned about California's low carbon fuel standard, which could potentially have a major impact on Alberta if widely adopted. While US legislation initially included a (weak) national low carbon fuel standard, the measure was subsequently dropped.³ The Canadian National Round Table on Energy and the Environment (2009) recently warned that Canada could face ruinous protectionism if it did not adopt a climate policy similar to that of its southern neighbor. This is a key reason for Canadian interest in coordinating with the United States on energy and climate change policies.

In contrast to its northern neighbors, Mexico's top priority is to cut GHG emissions from transportation, which

3. Sheldon Alberts, "US Climate Bill Would Be 'Disaster,'" *National Post* (online edition), May 14, 2009, available at www.nationalpost.com (accessed on July 30, 2009).

make up the largest part of its sectoral emissions portfolio (34 percent) (IEA 2008). In addition, Mexico is focused on reducing methane emitted by state-owned petroleum company PEMEX and wastewater treatment plants. While Mexico has set aggressive goals compared with other developing countries, meeting these goals will require it to overcome considerable capacity and financial constraints. Mexico would benefit from both bilateral technical and financial assistance from its NAFTA partners, as well as from the development of an integrated North American climate regime that would ensure that environmentally sound Mexican projects qualify to sell carbon credits to the other two countries.

COMMON NORTH AMERICAN INTERESTS

Despite the challenges, the three NAFTA partners have mutual interests in harmonizing climate policy. They share a common environment and a long history of environmental cooperation. The United States and Canada have signed acid rain and transboundary smog agreements, and the United States and Mexico have several border environmental and water compacts such as the International Boundary and Water Commission. More recently, the North American Development Bank has provided funding and coordination for environmental infrastructure in the US-Mexico border region.

The NAFTA region also has an interdependent but not fully integrated energy market. How energy is produced, used, and traded has a large impact on GHG emissions and affects how each country can adapt to a low-carbon future. The United States is a major consumer of petroleum; Canada and Mexico are major US suppliers. Almost 30 percent of US oil comes from North America, and in 2007, about 70 percent of the crude oil produced in Canada was shipped to the United States. Trade in energy totaled almost \$100 billion between the United States and Canada and almost \$10 billion between the United States and Mexico in 2007.⁴ Given their strong energy interdependence, US decisions that affect energy consumption will have a heavy impact on Canada and Mexico. Likewise, decisions made in Canada and Mexico that affect energy production will impact the US economy.

While Canadian electricity does not make up a large portion of most US states' electricity portfolios, it does comprise a major percentage of total consumption in a few border states. Vermont obtains almost 40 percent of electricity consumed from Quebec, and North Dakota and Minnesota obtain more than 10 percent of electricity consumed from Manitoba. US exports are less significant to Canadian provin-

cial electricity supply; the exception is British Columbia, which gets almost 10 percent of its electricity supply from American states.⁵

In addition, the North American countries share a common interest in minimizing policies that distort North American trade and investment. But the climate change debate has raised competitiveness concerns and prompted calls for border adjustments to offset the impact of climate policies on domestic firms. Interestingly, politicians and the public worry that pricing carbon could put US firms and workers at a competitive disadvantage against China and other Asian countries; in fact, however, most US imports of carbon-intensive goods come from Canada.⁶ Thus, much is at stake for both countries in harmonizing policy in order to prevent trade-related border carbon measures.

Finally, there is already several billion dollars' worth of trade in environmental goods between the United States and Canada and between the United States and Mexico. Under a carbon-constrained economy, all three countries stand to gain from expanding this trade—both in North America and abroad.⁷

US POLICY: BEFORE AND AFTER 2009

Before 2009, US climate policy was largely pursued by individual states, many following precedents of performance standards set by California. Thirty states adopted a renewable portfolio standard, and seventeen states committed to adopting automobile emissions standards that would produce fuel economy improvements in excess of federal regulation. Many states also implemented energy efficiency measures.

These policies were developed in the face of federal inaction on climate change. During the negotiation of the Kyoto Protocol, the US Congress had indicated its unwillingness to ratify a treaty to reduce GHGs unless developing countries such as China and India made similar commitments. Subsequently, the Bush administration followed a permissive environmental agenda regarding regulation of CO₂ as a pollutant and blocked states from implementing stricter automobile standards. Overall US GHG emissions increased despite increased energy efficiency.

5. Data are from Energy Information Administration, Statistics Canada, and National Energy Board.

6. These include steel, cement, paper, and aluminum. Canada is also the number two exporter of chemicals, behind Trinidad and Tobago. See Hufbauer, Charnovitz, and Kim (2009).

7. UNCTAD TRAINS Database via World Integrated Trade Solution, 2009. Based on the list of environmental goods (at 6-digit HS level) compiled by the World Bank (2007).

4. Data are from Energy Information Administration and Statistics Canada.

With the entrance of the Obama administration, this dynamic appears to have changed dramatically. The administration has pushed for passage of ACESA, directed the National Highway Transportation Safety Authority to raise fuel economy standards to California levels, and issued an endangerment finding for CO₂. Since ACESA will likely set the tone and framework for US climate policy over the next decade, we now turn to a discussion of its main provisions and implications for policy across the region.

ACESA AS A FRAMEWORK FOR US POLICY: DRAMATIC CHANGE OF COURSE

Unlike previous legislation proposed in Congress, ACESA is far more than a cap and trade bill. Rather, it is more of an “omnibus climate bill” that covers renewable energy, energy efficiency, building efficiency, automobiles, carbon capture and sequestration, and green jobs, in addition to a cap and trade program. Broadly, the bill sets out three main objectives: It cuts emissions, alters the mix and use of energy sources, and subsidizes the economic transition to a low-carbon economy. Contrary to initial plans, however, the version of ACESA passed by the House will generate only minimal revenues for the Treasury and will not contribute to reducing the federal budget deficit.

The bill’s overall goal is to reduce national GHG emissions 3 percent from 2005 levels by 2012, 20 percent by 2020, 42 percent by 2030, and 83 percent by 2050. Meanwhile, the cap and trade program within this bill directs the US Environmental Protection Agency (EPA) administrator to regulate emissions from *covered* sources such that they achieve a 3 percent reduction from 2005 levels by 2012, a 17 percent reduction by 2020, a 42 percent reduction by 2030, and an 83 percent reduction by 2050. About 85 percent of total emissions are covered under the cap and trade program. As not all emissions will be covered under cap and trade, additional reductions must come from parts of the bill not connected to the cap and trade program in order to achieve the economy-wide goals of the bill.

The bill also includes a renewable portfolio standard. Six percent of suppliers’ electricity load must be derived from eligible sources and/or energy efficiency in 2012. This requirement escalates to 20 percent in 2020. Up to one-quarter of firms’ compliance obligations can be met through energy efficiency as opposed to renewable electricity, unless the US Federal Energy Regulatory Commission (FERC) upon petition increases the standard to two-fifths. Eligible renewable sources include wind, biomass, solar, geothermal, some hydropower, marine, and hydrokinetic energy. Other eligible energy sources include landfill gas, wastewater treatment gas, coal

mine methane, and qualified waste-to-energy. In addition, the standard is reduced in proportion to the portion of a supplier’s electricity sales that are generated from existing hydroelectric facilities, new nuclear facilities, and fossil fuel units that use carbon capture and storage.

Most actions necessary for compliance with the bill will be subsidized via free allowances and auction revenues over the first decade or so. ACESA contains a plethora of rebates, tax credits, handouts, and allowance allocations that are intended to reduce the cost of the bill both to individual Americans and to industry. Allowances and auction revenues are mostly apportioned for three main purposes: to keep electricity prices low while transitioning to a less GHG-intensive, more efficient economy; to prevent adverse trade competitiveness impacts on domestic industries; and to compensate low-income families for cost increases. While many of these allocations are probably necessary in order to garner political support, some of them—particularly the rebates to trade-vulnerable industries—could ultimately undermine the efficiency of the bill.

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Most of the allowances created by ACESA will be allocated, not auctioned. About 70 percent of allowances are allocated at the start of the program in 2012. This proportion increases to over 80 percent by 2016. The biggest increase in allocated allowances is in support for trade-vulnerable industries, which jumps from 2 percent of total allowances to 15 percent in 2014. The largest portion of allowances goes toward mitigating electricity price increases; the percentage of the total number of allowances allocated to electricity consumers starts at 44 percent in 2012, decreasing to 35 percent by 2016. Most of these allowances are given to local distribution companies, which are mandated to pass on the savings to consumers in a lump-sum fashion. Based on EPA allowance price estimates, these allowances to electricity will be valued at \$23 billion to \$31 billion in 2012 and \$28 to \$37 billion in 2020.

For the electricity sector, alternate compliance payments and allowance allocations have been put in place with the objective of minimizing energy price increases due to the cap and trade program and the renewable portfolio standard.

According to an EPA estimate, the average annual cost per household of ACESA in terms of reduced consumption will be between \$98 and \$140. Measures to reduce energy price increases might mitigate the bill's competitiveness impacts for industry. To the extent that they also reduce incentives for end-use energy efficiency, however, they would force emissions abatement to come from elsewhere in the economy, potentially decreasing the efficiency of the bill and increasing its total cost.

About 10 percent of the total number of allowances will be allocated to state energy efficiency programs from 2012 to 2015. Five percent of the total number of allowances will be allocated to supplemental emissions reductions from reduced deforestation. EPA and the US Agency for International Development will administer these allowances to build capacity in developing countries that are either being deforested or at risk of deforestation. Mexico could be the recipient of some of these allowances.

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The bulk of revenues from auctions are earmarked to offset energy price increases for low-income consumers. Fifteen percent of the total number of allowances are earmarked for this purpose. This corresponds to an \$8 billion to \$11 billion rebate in 2012 and a \$12 billion to \$16 billion rebate in 2020.

A maximum of 2 billion tons per year of emissions can be offset in any given year, according to the bill. Half of these offsets can be international. We estimate that allowable offsets could amount to 27 to 32 percent of the total compliance obligation for firms between 2012 and 2025. In practice, however, that many certified offsets probably will not be available, particularly internationally.

ACESA will reduce the budget deficit, although not by much. From 2012 to 2025, unaccounted-for allowances will be auctioned, and revenues will be deposited into the Treasury in order to reduce the budget deficit. Based on EPA estimates of allowance prices, our estimate of the cumulative budget deficit reduction due to this measure from 2010 to 2019 is between \$14 billion and \$19 billion—most of which will be accumulated in the first four years of the program, from

2012 to 2015. The Congressional Budget Office's estimate of ACESA's overall effect on the budget is \$9 billion in deficit reduction between 2010 and 2019.

When President Obama first submitted his budget proposal earlier in 2009, it assumed 100 percent auctioning of allowances under a cap and trade program. This budget projected \$650 billion in revenues between 2010 and 2019, and some private estimates of potential cap and trade revenues were much higher.

COMPETITIVENESS MEASURES UNDER ACESA

ACESA includes two types of competitiveness measures: allowance rebates and a border reserve allowance program. The rebates consist of allowances allocated to trade-vulnerable industries to compensate for costs imposed by the bill, which are intended to keep US industries on an equal footing with industries in countries that do not adopt a cap and trade program. The international reserve allowance program, which is scheduled to be implemented later under certain conditions, could require importers to purchase allowances at the border for GHGs emitted during the manufacture of the imported products. Although some form of competitiveness provision is probably necessary to secure congressional support, these trade-related measures carry some risks.

Under the allowance rebate program, trade-vulnerable industries may receive a maximum of 15 percent of the total number of allowances created by the bill in 2014 and 2015 and 13.4 percent in 2016 and thereafter. Trade-vulnerable industries are defined as having an energy- or GHG-intensity of at least 5 percent and a trade exposure of at least 15 percent. In addition, industries with very high energy- or GHG-intensities—defined as an intensity of 20 percent or greater—are also eligible for rebates. By 2020, these allowances could be worth \$11 billion to \$14 billion per year, based on EPA allowance price estimates. Allowances will be distributed on a product-output basis; 100 percent compensation will be provided for both direct and indirect compliance costs based on average carbon intensity for the sector. Rebates are slated to end in 2035. Trevor Houser estimates that 35 industries would qualify.⁸

In earlier drafts of the US legislation, only 85 percent of costs to trade-vulnerable industries were subsidized. We

8. An assessment of qualifying industries in a preliminary version of the bill can be found in Trevor Houser's April 23, 2009 testimony to the Committee on Energy and Commerce of the US House of Representatives, Ensuring US Competitiveness and International Participation, available at www.piiie.com. While the types of industries that qualify have changed slightly since this testimony, the number of qualifying industries has not.

assume the members' reasoning was that there is on average a 30 percent spread of carbon intensities in affected industries. With an 85 percent subsidy, therefore, the least carbon-intensive firms would have 100 percent of their costs subsidized; firms with average carbon intensities would have 85 percent of their costs subsidized; and the most carbon-intensive firms would have 60 percent of their costs subsidized. This proposal would have avoided over-rebating any firm. In the current version of the bill, however, firms with average carbon intensities will have 100 percent of their costs subsidized, and firms that are less carbon-intensive than average—half the industry in any given sector—will have over 100 percent of their costs subsidized. The least carbon-intensive firms will have 115 percent of their costs subsidized.

Starting in 2020, border adjustments may be imposed through an international allowance reserve program, according to presidential discretion. These adjustments may be implemented if less than 85 percent of imports in a sector come from countries that are deemed to have taken comparable action under the bill. In order to meet the bill's criteria for comparable action in a certain sector, countries must

- be party to an international treaty to which the United States is a party that includes a nationally enforceable emissions reduction commitment at least as stringent as that of the United States or
- be party to a sectoral emissions reduction agreement including the United States or
- have a greenhouse gas intensity for the sector equal to or less than that of the United States.

The following imports will be exempt from border allowance purchase requirements:

- imports from least developed countries,
- imports from countries responsible for less than 0.5 percent of global emissions and less than 5 percent of US imports in the sector, and
- imports from countries that have taken comparable action.

These provisions are highly controversial, and it is not clear where they fall in terms of World Trade Organization (WTO) rules.⁹ There appears to be a consensus among trade experts that the rebate system is preferable to border adjustments, although this consensus is not universal.¹⁰ The reason-

ing is that border measures are a highly visible form of protectionism and could thus lead to a downward spiral of tit-for-tat retaliatory trade measures. The Obama administration appears to share this view, cautioning lawmakers to be "very careful about sending any protectionist signals out there."¹¹

On the other hand, it is not clear to us that the rebates are any less worrisome for the world trading system—and they could prove worse for the ultimate goal of reducing GHG emissions. The rebates' advantage is that they are a less visible form of protectionism and thus less likely to trigger countervailing measures. Because they are given out on a product-output basis, however, they are trade distorting and could create perverse incentives to produce more goods from the carbon-intensive sectors receiving the rebates. Border measures would not create these perverse incentives. The rebates' effects are not targeted; they disadvantage exports from all other countries, even those that have adopted climate change measures themselves. The over-rebates could also be challenged under the WTO as trade-distorting subsidies.

IMPLICATIONS OF ACESA FOR NORTH AMERICAN TRADE AND COOPERATION

ACESA is over 1,400 pages long, but it still leaves some unanswered questions. One heretofore relatively unexplored topic is how ACESA will affect US trading partners in North America. In addition to the obvious impacts of trade competitiveness measures imposed at the border, the bill has implications for state-provincial cap and trade compacts, international electricity trade, and Mexico's bid to reduce emissions 50 percent by 2050.

Due to the federal preemption provisions in this bill, multi-jurisdictional cap and trade agreements among US states and Canadian provinces—including the Regional Greenhouse Gas Initiative (RGGI), the Western Climate Initiative (WCI), and Midwest Accord cap and trade systems—will have to be disbanded. Holders of allowances issued by California, RGGI, and WCI will receive federal allowances to compensate, according to the average cost of the state allowances in the year they were issued. The above provision is limited to US holders only, however. It is yet unclear whether or how Canadian holders of allowances under the WCI will be compensated for the disbanding of the multi-jurisdictional trading system.

In theory, renewable electricity transmitted from Canada

June 29, 2009, available at <http://krugman.blogs.nytimes.com> (accessed on July 30, 2009).

11. John M. Broder, "Obama Opposes Trade Sanctions in Climate Bill," *New York Times* (online edition), June 28, 2009, available at www.nytimes.com (accessed on July 30, 2009).

9. For a thorough discussion of WTO rules regarding border adjustments, see Hufbauer, Charnovitz, and Kim (2009).

10. Paul Krugman, "Climate, Trade, Obama," *New York Times* (blog post),

could help US border states meet ACESA's renewable portfolio standard requirements. Explicit domestic content requirements were removed from early state renewable standards. If the federal government follows this precedent, as seems likely, then Canadian electricity will be afforded national treatment under ACESA.¹²

As we mentioned earlier, there is substantial cross-border electricity transmission between Canadian provinces and northern US states. Vermont obtains almost 40 percent of electricity from Canada, and North Dakota, Minnesota, and Maine obtain more than 10 percent. More than half of Canadian electricity—and the vast majority of Canadian renewable electricity—comes from large hydropower facilities.

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In order for hydropower to qualify as renewable electricity under the bill, however, it must result from additional capacity or increased efficiency added after 1988, to a hydroelectric facility placed in service before 1988. It is questionable whether much of Canadian hydropower can meet this standard. The inclusion of Canadian hydropower as a qualifying renewable source also poses regulatory difficulties. The US FERC is responsible for certifying qualified hydropower under the bill, but FERC does not have jurisdiction over Canada.

Even unqualified hydropower, however, can help a utility meet its renewable portfolio obligation. Unqualified hydropower, along with nuclear electricity and electricity generated using carbon capture and sequestration, is subtracted from a utility's base generation amount. Thus, the more hydropower a utility uses, the less energy that utility is obligated to produce from renewable power.

Finally, the significant portion of international offsets allowed under ACESA could provide a channel for US support for GHG mitigation in Mexico. Used properly, offset markets can improve the environment, reduce deforestation, alleviate poverty, and lower the cost of abating climate change. However, offsets require rigorous monitoring, reporting, and verification in order to ensure that they represent genuine emissions reductions. Institutional cooperation could strengthen and expedite monitoring, reporting, and verification in North America.

12. E-mail exchange with Jason Tolland, Environment and Energy Program Manager, Embassy of Canada, Washington.

OPPORTUNITIES FOR NORTH AMERICAN COOPERATION

We conclude with concrete steps that the three North American countries could pursue together to advance their national climate change objectives. Some require bilateral action; others are specifically linked to NAFTA and thus are necessarily trilateral in nature. Combined, they form a pragmatic NAFTA agenda for near-term action on climate change issues.

Use the Commission for Environmental Cooperation (CEC) as a clearinghouse for climate change-related data. The CEC is underutilized and underfunded; with modest budgetary increments, it 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 of carbon credits—issued under national or regional carbon regimes—that could lower transaction costs of offset projects among the three countries.

Standardize definitions of renewable energy in Canada and the United States and coordinate their policies. Currently, definitions vary widely among states and provinces, complicating regulation of renewable electricity from across the border. The major differences between the US and Canada regulations lie in the eligibility of hydropower to meet renewable standards, as well as the eligibility of nuclear facilities to meet zero-carbon requirements in provinces like Ontario. Several Canadian provinces generate most of their electricity from hydropower; many US states will face a challenge in meeting the Waxman-Markey bill's renewable portfolio standard. Both sides should make virtue out of necessity and agree on how imported electricity should be credited and certified under renewable portfolio standards. Border states and provinces should continue to work toward zero-carbon energy generation through existing regional institutions.

Adopt a NAFTA peace clause. In the near term, trade measures or border adjustments should not be used to equalize costs between domestic and foreign producers, as these measures are likely to be emulated or provoke retaliation in other countries. In order to handle competitiveness concerns that are not addressed through international climate negotiations, a framework needs to be developed under the WTO so as not to give rise to litigation or to snowballing protectionism. Because such a framework would take a few years to develop, a temporary "peace clause" suspending border measures for a limited time

should be incorporated into US (and foreign) climate legislation in order to encourage WTO negotiating efforts. In addition, liberalization of environmental goods and services should be given higher priority in the Doha negotiations.¹³

Study options for coordinating or integrating the evolving carbon regimes in each country. Policies that impose similar costs on firms no matter where they are in North America would eliminate carbon leakage within the NAFTA area. In addition, policy coordination could facilitate carbon credit trading by ensuring that carbon credits in all three countries represent similar kinds of carbon reductions. Such a coordinated policy would likely evolve from two separate but similar national cap and trade systems in the United States and Canada, with incentives for Mexican participation.

Establish a “safe harbor” to 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 as well as adversely affect flows of trade and investment in the region.

Capacity building in Mexico is essential to North American coordination. NAFTA provides a unique opportunity for this. First, NAFTA facilitation of Mexican carbon offset sales

could potentially generate revenue that could be put toward climate change measures in Mexico. Second, the North American Development Bank should be used to provide finance and technical assistance for energy-saving and pollution control projects in Mexico in support of its ambitious climate change policies.

In addition to these recommendations, the North American countries might consider harmonizing emissions standards or establishing a North American carbon trading regime. North American cooperation could serve as a model for how developed and developing countries can mutually benefit from an international climate change agreement.

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13. A PIIE working paper (Adler et al. 2009) estimates that removing tariffs on environmental goods could increase world trade by about \$8 billion.

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