

# NAFTA as a Forum for CO<sub>2</sub> Permit Trading?\*

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\* Paper presented at the conference on “Climate Change Politics in North America,” Woodrow Wilson International Center for Scholars, Washington, D.C., May 18-19, 2006, <[www.wilsoncenter.org/ecsp](http://www.wilsoncenter.org/ecsp)>.

## 1. Introduction

The carbon market is one of the world's fastest growing markets, with trade volume increasing from 94 million metric tons in 2004 to 800 million metric tons in 2005 at an approximate value of €9.4 billion (Hasselknippe and Røine 2006).<sup>1</sup> A 2003 study identified more than 45 greenhouse gas (GHG) trading systems worldwide in operation or under development, including systems at the sub-national, national, transnational levels involving both the public and private sectors (Hasselknippe 2003).<sup>2</sup> There has been some discussion within the North American Commission for Environmental Cooperation (CEC), the environmental organ of the NAFTA regime, about establishing a CO<sub>2</sub> permit trading system to mitigate the environmental impacts of electricity generation. North America consumes half of all electricity produced and consumed in the industrialized world, and electricity generation is a significant source of CO<sub>2</sub> emissions in Canada, the US and Mexico (Dukert 2002). Following a brief introduction to the CEC discussions, this paper addresses three sets of issues related to establishing a NAFTA-wide CO<sub>2</sub> permit trading system in the CEC, with particular focus on its implications for climate protection: the institutional context, design elements, and overlap with other trading systems. I conclude by questioning the wisdom of establishing a CO<sub>2</sub> permit trading system within the NAFTA regime to address the problem of climate change.

## 2. The CEC and Emissions Trading

The CEC is the primary mechanism for addressing environmental concerns within the NAFTA regime. CEC discussions related to mitigating CO<sub>2</sub> emissions are in their infancy, and it is important to acknowledge that climate change is by no means at the top of the CEC agenda. While climate change has not been addressed directly, climate-related issues have been taken up in several CEC program areas (Betsill forthcoming). The CEC Council (which consists of the environment ministers from each Member State) has passed two climate-related resolutions calling for coordination on developing methodologies for GHG emissions inventories and forecasts (CEC 1995; CEC 2001).

The most recent discussions on climate change are linked to concerns about the environmental impacts, especially related to air quality, of an increasingly integrated North American electricity market (CEC 2002). Of course, discussions of air quality and the electricity sector are not divorced from the problem of climate change since electricity generation is a significant (and growing) source of GHG emissions in each NAFTA Member State, accounting for 39% of all CO<sub>2</sub> emissions in the US, 22% in Canada and 30% in Mexico (Miller and Van Atten 2004). The North American electricity market has experienced rapid change over the past decade in the form of increased trade and rising demand, largely due to the general trend of trade liberalization and regional convergence in competitiveness and trade policy (CEC 2002; Dukert 2002; McKinney 2000). Market integration is likely to continue and generation capacity is expected to increase to meet rising demand (CEC 2002; Ferretti 2002). Ultimately, a number of factors will determine the implication of market integration and increased generation capacity on North American GHG emissions, including location, fuel choice, price, infrastructure, market access, grid access and regulations (CEC 2002; Dukert 2002; McKinney 2000; Mumme and Lybecker 2002).

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<sup>1</sup> In April 2006, the value of carbon credits within the European Emissions Trading Scheme decreased by half. The long-term implications of this for the global carbon market are unclear (*The Economist*, 6 May 2006).

<sup>2</sup> Trading systems are typically categorized as either allowance or credit systems. Allowance trading system (also referred to as "cap and trade" or permit systems) involve setting an upper limit on emissions levels, distributing emissions allowances among participants in the system and letting participants trade allowances among themselves in order to meet their respective commitments. Credit (or project-based) trading systems engage in the purchase and transfer of emissions credits derived from specific projects. The permit trading system discussed in this paper is an example of an allowance trading system.

In 2000, the CEC launched an initiative to address the challenge of ensuring “an affordable and abundant supply of electricity without compromising environmental and health objectives” (CEC 2002, v.). Specifically, the CEC examined the environmental aspects of the regional electricity market and prospects for green electricity.<sup>3</sup> In the final report, “Environmental Challenges and Opportunities of the Evolving North American Electricity Market,” the Advisory Board made four recommendations specific to climate change and emissions trading: 1) develop a regional GHG emissions inventory; 2) establish a framework for a regional GHG emissions trading regime; 3) demonstrate that carbon trading can generate resources for developing countries (e.g. Mexico); and 4) develop programs to stimulate investment in clean and renewable energy production (especially, in the US) (CEC 2002).

In 2002, the CEC Council agreed to include some items from the electricity report in the 2003 CEC Air Quality Work Plan, including comparative studies of North American air quality management standards, regulation and planning, compatibility of standards for construction and operation of electricity generation facilities and opportunities for emissions trading (JPAC 2003). In 2004, the CEC issued a report detailing 2002 SO<sub>2</sub>, NO<sub>x</sub>, mercury and CO<sub>2</sub> emissions from North American power plants as a result of a 2001 Council Resolution and the “Environmental Challenges” report (Miller and Van Atten 2004).

### 3. The Institutional Context

This section considers the ability of the CEC to facilitate a political agreement to control CO<sub>2</sub> emissions among its Member States, recognizing that such agreement is a key factor in the success of any emissions trading system (Aulisi et al. 2005; Hasselknippe 2003). I find that the specific rules and structures of the CEC and NAFTA limit the possibility of discussing CO<sub>2</sub> as a contributor to climate change and favor policies that are consistent with NAFTA’s trade liberalization goal.

#### 3.1 The CEC

The ability of the CEC to facilitate political agreement on the need to control CO<sub>2</sub> emissions is constrained by the absence of common interests on climate change. NAFTA Member States have developed their domestic climate change policies independently of one another, and each country has a distinct approach. The US focuses on reducing the carbon intensity of its economy through voluntary programs (U.S. Department of State 2002). The Canadian system consists of government regulations, including a domestic emissions trading system, and strategic investment designed to achieve its Kyoto target and to become a world leader in developing clean technology (Government of Canada 2005). Mexican climate policy has focused on developing an emissions inventory, mitigation projects in the forestry and energy sectors, and attracting investment through the Clean Development Mechanism and Joint Implementation program under the Kyoto Protocol (Instituto Nacional de Ecología 2001). Canada and Mexico are both Parties to the Kyoto Protocol, although only Canada has a binding commitment to reduce its GHG emissions. The CEC, as an intergovernmental body, has no authority to promote policy coordination unless Member States concede the necessity of doing so, which seems unlikely given the different national approaches to climate change (Stavis and Mumme 2000).

In contrast, NAFTA Member States do appear to have common interests related to air quality and energy supply as reflected in the CEC’s programs and projects. The CEC may be able to facilitate political agreement on controlling CO<sub>2</sub> emissions to the extent that CO<sub>2</sub> is linked to air quality and energy issues rather than climate change. Regional organizations, which typically address many issues simultaneously,

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<sup>3</sup> The process was overseen by an advisory board and involved the production of several working papers and three public events. Copies of these papers and information on the public events are available at [http://www.cec.org/programs\\_projects/other\\_initiatives/electricity/index.cfm?varlan=english](http://www.cec.org/programs_projects/other_initiatives/electricity/index.cfm?varlan=english).

can promote the development of shared interests by linking a particular issue to other issues addressed within the organization that may be of greater concern to one or more Member States (Axelrod and Keohane 1986; Levy, Keohane, and Haas 1995). Indeed, we see this sort of issue linkage in the CEC where CO<sub>2</sub> is treated like other air pollutants produced by utilities. The power plant emissions report identified CO<sub>2</sub> as “an important greenhouse gas,” but fails to link greenhouse gases to the problem of climate change (Miller and Van Atten 2004). The electricity report highlights the transboundary environmental impacts of electricity generation, and identifies the specific problems associated with NO<sub>x</sub>, SO<sub>2</sub> and mercury. Of CO<sub>2</sub> emissions, however, the report states only that they “are of global concern wherever they are emitted” without specifying the exact nature of that concern (CEC 2002).

### 3.2 The NAFTA Factor

Another important component of the institutional context concerns the relationship between a CEC-based CO<sub>2</sub> permit trading system and the broader NAFTA regime, where trade liberalization is the primary objective. Consistent with the NAFTA treaty, the CEC rests upon a core set of neoliberal economic assumptions—trade will increase prosperity, environmental protection is an important part of prosperity, and trade will create greater resources for environmental protection—and works to promote environmental sustainability in ways that are consistent with NAFTA’s trade liberalization goal (Ferretti 2002). On the general relationship between the environment and trade in the NAFTA context, Stevis and Mumme (2000) contend the environment plays a secondary role. It is therefore not surprising that emissions trading has emerged as a preferred policy option within the CEC for mitigating the environmental impacts of electricity generation since market-based instruments such as emissions trading are seen to offer a win-win solution to environmental problems by providing economic incentives and flexibility.

At the same time, the fact that a CEC-based CO<sub>2</sub> permit trading system would be nested within the broader NAFTA regime means that it would need to be consistent with NAFTA’s trading rules in general and rules specific to the electricity sector in particular (Horlick, Schuchhardt, and Mann 2002). Russell (2002) identifies a number of potential conflicts between a NAFTA-wide emissions trading system and trade and investment provisions in the NAFTA treaty. For example, would tradable emissions units be treated goods and therefore subject to Chapter 3 provisions on national treatment and market access? Would purchasing emissions units from entities in other countries fall under Chapter 11 rules regarding investment? Emissions allowance units could be considered as subsidies subject to extra duty when transferred between countries. Is trade in TEUs an activity linked to the procurement of energy goods and services? Finally, could activities involved in the trading system be viewed as trade restrictions?

### 3.3 Implications

Given the nature of the rules and structure of the CEC and the NAFTA regime, political agreement on the need to control CO<sub>2</sub> emissions depends on linking CO<sub>2</sub> to broader concerns on air quality and energy rather than climate change. Moreover, political agreement must rest on a core commitment to NAFTA’s trade liberalization objective. As discussed below, this way of framing the problem of CO<sub>2</sub> emissions has implications for the design of a CEC-based CO<sub>2</sub> permit trading system and overlap with other trading systems in Europe and North America.

## 4. Design Issues

The design of an emissions trading system affects its environmental integrity and economic efficiency. This section analyzes several key design elements involving coverage (gases and sectors) and targets (caps and allocation), and identifies issues that may arise in the context of designing a CEC-based CO<sub>2</sub> permit trading system. In several instances, I find that the goals of environmental integrity and economic

efficiency are likely to come into conflict and that the need to serve NAFTA's trade liberalization goal raises further complications.

#### 4.1 Coverage

Trading systems that include a variety of gasses give participating installations the flexibility to reduce emissions where costs are lowest. Roughly half of all CO<sub>2</sub> permit trading systems include a basket of six GHGs, which makes sense in addressing the problem of climate change since each has a warming potential (Hasselknippe 2003). At the same time, monitoring and verifying emissions reductions for several gases can be difficult, so many systems only include CO<sub>2</sub>. It seems likely that a CEC-based trading system would likely include only CO<sub>2</sub> rather than other GHGs. CO<sub>2</sub> is also the only GHG that has been monitored to date on a cross-national basis, so starting with CO<sub>2</sub> would make it easier to get a system up and running. In addition, reaching agreement among Member States to include a broader range of GHGs could be difficult given that the CEC views CO<sub>2</sub> as an air pollutant rather than a contributor to climate change. This framing makes it likely that a CEC-based system would include other air pollutants that are monitored cross-nationally: SO<sub>2</sub>, NO<sub>x</sub> and mercury.

As noted above, including several gasses is economically desirable because facilities can choose to reduce emissions of gasses where the costs are lowest. However, by including non-GHGs, a CEC-based system may have little impact on the problem of climate change if participating facilities routinely choose to reduce SO<sub>2</sub>, NO<sub>x</sub> or mercury emissions rather than CO<sub>2</sub>. One way to achieve environmental integrity in terms of climate protection is to set emissions caps on a gas-by-gas basis. However, this would reduce the flexibility that comes with multi-gas coverage, potentially raising compliance costs.

Ideally, a CO<sub>2</sub>-permit trading system should have broad participation from a variety of sectors and emissions sources, since sources are highly diffuse across the economy and broad participation allows for greater opportunity to identify low-cost reduction options (Aulisi et al. 2005). At the same time, broad participation may be administratively or politically prohibitive. The vast majority of CO<sub>2</sub> permit trading systems focus on large final emitters (e.g. power plants), which tends to keep the number of facilities at a manageable level while also covering a relatively high percentage of emissions (Christiansen and Wettstad 2003; European Commission 2004; Hasselknippe 2003). Discussions within the CEC have focused on the electricity generation sector, which seems to be an appropriate compromise given its central role in producing CO<sub>2</sub> emissions as well as other air pollutants. Another related issue is whether participation should be mandatory among facilities in the covered sectors. Participation in a CEC-based trading system would likely be voluntary given the Bush Administration's opposition to regulating CO<sub>2</sub> emissions at American facilities. Aulisi et al. (2005) argue that allowing facilities to voluntarily join a trading system creates a problem of "adverse selection" whereby only those firms whose emissions are likely to decrease anyway join in thereby reducing the demand for (and thus price of) credits.

Many allowance trading systems allow credits purchased from project offsets to be included (Hasselknippe 2003). Allowing offset credits is one way of encouraging participation in trading schemes by developing countries since they are likely to attract investment in offset projects. In North America, allowing project credits to some extent could be a particularly attractive option for Mexico whose domestic focus has been on situating itself to provide this service under the Kyoto Protocol. However, the problem with offset credits is that they fall outside the emissions cap and can thus lead to greater emissions, thereby jeopardizing the environmental integrity of the trading system (Aulisi et al. 2005).

#### 4.2 Targets

Two key tasks in setting up a permit trading system are setting the cap, the upper limit on emissions of covered gasses, and allocating emissions allowance among facilities in the selected sector(s). Caps can be

expressed in a variety of ways: absolute tons of emissions, percentage of emissions from a base year, or intensity-based emissions standards (Hasselknippe 2003). In systems that include a number of gasses, targets may reflect an overall cap on the emissions of all gases combined or they can be set on a gas-by-gas basis. As mentioned above, if a CEC-based CO<sub>2</sub> permit trading system is to be climate-relevant, it must have a gas-by-gas cap. However, setting a CO<sub>2</sub> cap in the North American context is likely to be difficult as there is no clear basis for doing so. NAFTA Member States have very different domestic approaches to climate change, and only Canada has a binding target to reduce emissions under the Kyoto Protocol. As discussed above, the CEC has limited authority over its Member States and is thus unable to impose target without the consent of Member States. Moreover, the scientific rational for setting a CO<sub>2</sub> target linked to air quality is weak.

Once a target is set, emissions allowances must be allocated among participating facilities, which can be done by a central authority (e.g. the CEC) or by jurisdictions within the trading system (e.g. national governments) thereby enhancing flexibility. The latter option is most likely in the North American context given the CEC's weak authority over Member States. Each jurisdiction could then decide how to allocate allowances. Under grandfathering, allowances are distributed to participating facilities based on historical emissions and/or production levels. Alternatively, facilities can be required to purchase allowances through an auction (Aulisi et al. 2005; Christiansen and Wettestad 2003). Auctioning allowances is seen to be the more economically efficient approach and can be useful for early price recovery. Nevertheless, requiring facilities to purchase allowances is likely to be politically contentious. In the initial stages, grandfathering is less likely to mobilize opposition from covered facilities and may enhance prospects of getting a system up and running (Christiansen and Wettestad 2003). A potential weakness of the grandfathering approach recently became apparent when carbon credits within the European system lost 50% of their value. Several EU countries announced that their 2005 emissions were smaller than expected, which in turn reduced future demand for credits. According to *The Economist* (6 May 2006), this reflects "industry's success in getting itself allocated more permits than actual emissions warranted when the scheme was launched."

#### 4.3 Implications

Design choices related to coverage and targets often involve conflicts between the goals of economic efficiency and environmental integrity. Given NAFTA's central goal of trade liberalization, the CEC may be likely to resolve such conflicts by giving priority to economic efficiency. On the question of setting a separate target for CO<sub>2</sub>, this could make a CEC-based CO<sub>2</sub> permit trading system meaningless for climate change. The design of a CEC-based trading system also has implications for overlap with other CO<sub>2</sub> permit trading systems.

### 5. Overlap with other CO<sub>2</sub> permit trading systems

In recent years, CO<sub>2</sub> permit trading systems have emerged at a variety of levels of social organization in both the public and private spheres, reflecting a general trend toward multi-level governance on the issue of climate change (Betsill and Bulkeley 2006). In a situation of multi-level governance, governance arrangements may overlap both horizontally (across space) and vertically (across levels of social organization), and synergies between overlapping institutions cannot be assured (Berkes 2002; Young 2002). Young (2002, 266) highlights the need to “ensure that cross-scale interactions produce complementary rather than conflicting actions.” This section considers overlap between a CEC-based CO<sub>2</sub> permit trading system and seven allowance trading systems in operation, under development or proposed in North America and Europe as of 1 February 2006 (see Table 1).<sup>4</sup> I identify two areas of potential conflict: regulation of electricity generation and the relationship to the international climate change regime.

**Table 1.** GHG Allowance Trading Systems in North America and Europe

<b>Trading System</b>	<b>Status</b>	<b>Description</b>
Canadian Large Final Emitters (LFEs)	To start in 2008	Part of Canadian government’s comprehensive planning for honoring its Kyoto Commitment. Sets CO <sub>2</sub> reduction targets for 700 companies accounting for nearly 50% of Canada’s emissions
Chicago Climate Exchange	Operational (pilot phase 2003-2006)	Voluntary trading program for companies, municipalities and universities in Canada, the US and Mexico.
EU Emissions Trading System (ETS)	Operational (as of 1 January 2005)	Part of Kyoto compliance system; includes CO <sub>2</sub> emissions from more than 12,000 installations in the energy and industrial sectors
New England Governors/Eastern Canadian Premiers (NEG/ECP)	Proposed in 2001	Part of NEG/ECP climate change program to reduce GHG emissions to 1990 levels by 2010 and 10% below by 2020. Exploring options for cross-border emissions trading.
New Hampshire	Operational (begun in 2002)	Mandatory system for state’s power plants with annual caps on CO <sub>2</sub> , SO <sub>2</sub> , NO <sub>x</sub> and mercury.
Regional Greenhouse Gas Initiative (RGGI)	Planned (proposed in 2003)	Establish a common CO <sub>2</sub> permits trading system from Maryland to Maine covering power plants.
US Climate Stewardship Act	Legislation introduced the Senate in 2005	Proposal to require all entities emitting more than 10,000 tons of CO <sub>2</sub> equivalent a year in the electricity, transportation, industry and commercial sectors to stabilize emissions at 2000 levels over 2010-2015 period.

<sup>4</sup> The analysis draws on a framework developed by Selin and VanDeveer (2003, 15) to analyze governance linkages, which consist of “structural connections between components of particular international institutions.” I rely on data from primary and secondary documents for each trading system as well as databases compiled by the International Emissions Trading Association and the Pew Center on Climate Change.

### 5.1 Electricity Generation

CO<sub>2</sub> permit trading systems in North America and Europe vary in terms of the economic sectors covered and whether participation by entities within those sectors is mandatory or voluntary (Table 2). Despite this variation, it is notable that the electricity sector is subject to regulation in the Canadian, EU ETS, New Hampshire, RGGI and Climate Stewardship Act systems and is the likely target of a CEC-based emissions trading system. In the case of the New Hampshire and RGGI systems, the overlap produces complementarity because the RGGI is explicitly designed to help states meet their specific goals. However, overlap between these systems and a CEC-based trading system could result in conflict if power generation facilities in Canada and the US find themselves subject to conflicting regulations. When overlapping institutions come into conflict, there may be incentives for actors to shift political authority to the venue most likely to promote a favorable policy (Alter and Meunier 2006; Gerber and Kollman 2004). Owners of North American power-generation facilities may prefer to shift primary authority to a CEC-based system for two reasons. First, the CEC jurisdiction would cover all power plants in North America, which would lessen the risk that some facilities may gain a competitive advantage because they face no or less restrictive regulations. Second, it is possible that a CEC-based program rationalized in terms of air quality would set a less stringent CO<sub>2</sub> reduction target than the other systems, which are justified in terms of mitigating the threat of climate change.

**Table 2.** Participation in emission trading systems.

<b>System</b>	<b>Participation</b>
Canadian LFEs	Mandatory participation for large final emitters in the mining and manufacturing, oil and gas, and thermal electricity sectors
Chicago Climate Exchange	Voluntary participation for corporations, municipalities, universities, and non-profit organizations
EU ETS	Mandatory participation for combustion plants; oil refineries; coke ovens; iron and steel plants; cement, glass, lime, brick and ceramics factories; and pulp and paper.
NEG/ECP	No data
New Hampshire	Mandatory participation for fossil-fuel fired power plants
RGGI	Voluntary <sup>5</sup> participation for power generation facilities
Climate Stewardship Act	Mandatory participation for electricity, transportation, industry and commercial sectors

### 5.2 The International Climate Change Regime

Analyses of the global carbon market frequently distinguish between Kyoto and non-Kyoto systems, based on the system's linkages to the Kyoto Protocol on climate change (Lecocq and Capoor 2005). The Canadian LFE and EU ETS systems are clearly nested within the Kyoto system; they are designed to facilitate compliance with Kyoto emissions reduction commitments. Two other systems in North America interact with the international climate change regime as well. The NEG/ECP *Climate Change Action Plan 2001* identifies as its long-term goal the need to "reduce regional GHG emissions sufficiently to eliminate any dangerous threat to the climate" and notes that this goal "mirrors that of the United Nations Framework Convention on Climate Change" (New England Governors/Eastern Canadian Premiers 2001, 6). The US *Climate Stewardship Act* acknowledges the US obligation, as a party to the UNFCCC, to stabilize its GHG emissions at 1990 levels (although it establishes an alternative target date).

<sup>5</sup> Depends on the situation within a member state, which can require mandatory participation.



A CEC-based trading system is difficult to classify according to the Kyoto/non-Kyoto distinction. On the one hand, a CEC-based emissions trading system would not be driven by compliance with the Kyoto Protocol since not all of its Member States have Kyoto targets, and it is rationalized more broadly in terms of air quality and energy issues. On the other hand, Canada does have an obligation to reduce its GHG emissions 6% below 1990 levels under the Kyoto Protocol. Due to market forces in North America, Canadian firms have become major suppliers of oil and natural gas to the US, leading to increased emissions and higher Kyoto compliance costs (Charnovitz 2003; Page 2002; Zhang 2003). This puts Canada in a difficult situation. The EU ETS, as the model for an international trading system under the Kyoto Protocol, can be linked to trading systems in countries that have ratified the Kyoto Protocol through mutual recognition of allowances (Christiansen and Wettestad 2003). However, under these rules, credits obtained from US firms (located in a non-Party state) would not be recognized internationally and thus could not be used to meet Canada's Kyoto commitment. In other words, institutional interplay between a CEC-based trading system and the international climate change regime leads to a conflict that could undermine Canada's ability to comply with its Kyoto target.

### 5.3 Implications

Overlap between a CEC-based CO<sub>2</sub> permit trading system and other trading systems in North America and Europe may produce conflict in terms of regulation of emissions from electricity generation and the ability of Canada to meet its Kyoto commitment.

### 6. Conclusion

This paper has examined several issues related to a proposal to establish a NAFTA-wide CO<sub>2</sub> permit trading system within the CEC. I find that the political foundation for such a system depends on viewing CO<sub>2</sub> as a threat to general air quality rather than climate change and relying on policies that do not threaten the goal of trade liberalization. In addition, the design of such a system will give rise to conflicts between economic efficiency and environmental integrity, with economic efficiency likely to prevail given NAFTA's trade liberalization goal. Finally, I conclude that overlap between a CEC-based CO<sub>2</sub> permit trading system and other trading systems in North America and Europe could result in conflicts over the regulation of the electricity generation sector and with the international climate change regime.

These findings lead me to question the wisdom of establishing a CEC-based CO<sub>2</sub> permit trading system as a strategy for addressing climate change. Because of its intergovernmental nature, the CEC is unable to promote harmonization of climate policy among Member States without their consent. Instead, it must address climate change indirectly by linking the problem to broader issues of air quality and energy. While this may be a politically useful strategy, it could dilute the impact of the trading system on climate change if CO<sub>2</sub> emissions are not considered separately from other air pollutants. In addition, the fact that the CEC is nested within the broader NAFTA regime means that conflicts between environmental integrity and economic efficiency are likely to be resolved in favor of economic efficiency so as to be consistent with the goal of trade liberalization. Finally there is danger that a CEC-based CO<sub>2</sub> permit trading system could undermine more direct efforts to address climate change in other tiers and spheres of governance.

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