



COMMENTARY/COMMENTAIRE

Carbon Policy: The Right — and Wrong — Ways to Use NAFTA

By Lewis J. Perelman

Carbon policy is a messy tangle of energy, economic, environmental, and security problems that span North America and interact through the North American Free Trade Agreement (NAFTA).

The failed cap-and-trade scheme to regulate the use of fossil fuels—in the name of “climate protection” or “energy security”—is a bad policy that analysts Jeffrey Schott and Meera Fickling at the Peterson Institute for International Economics recommend using NAFTA to impose on Canada, the United States, and Mexico. Experience indicates it would raise energy costs even further, undermine economic recovery, be prone to corruption, and yet yield minuscule benefits.

The fact is that the technology needed to reduce environmental impacts of fossil fuels while providing economically efficient alternatives mostly does not yet exist.

A far better strategy comes from an emerging consensus of analysts at the Breakthrough Institute and several other research institutes, agencies, and policy groups. They conclude that solving the carbon policy mess requires a basic shift in focus: away from emissions regulation and instead on creating technology innovations to “make clean energy cheap.”

The advocates of a technology-focused strategy call for a continuing public investment of around \$20

La politique de réduction des émissions de carbone est un enchevêtrement compliqué de problèmes concernant l'énergie, l'économie, l'environnement et la sécurité qui embrassent toute l'Amérique du Nord et qui sont reliés par l'Accord de libre-échange nord-américain (ALÉNA).

Le système de plafonnement et d'échange des droits d'émission pour réguler l'utilisation de combustibles fossiles – au nom de la « protection du climat » ou de « la sécurité énergétique » – est une mauvaise politique que les analystes Jeffrey Schott et Meera Fickling de l'Institut Peterson pour l'économie internationale recommandent d'imposer au Canada, aux États-Unis et au Mexique par l'entremise de l'ALÉNA. L'expérience démontre qu'il entraînerait une augmentation encore plus forte des coûts de l'énergie, compromettrait la reprise économique, serait susceptible d'entraîner de la corruption, tout en ne produisant que de minuscules avantages.

La réalité est que la technologie nécessaire pour mitiger les conséquences environnementales des combustibles fossiles tout en offrant des solutions de rechange efficaces sur le plan économique n'existe pas encore.

Un consensus en voie d'émerger parmi les analystes de l'Institut Breakthrough et de plusieurs autres instituts de recherche, agences et groupes de réflexion présente une bien meilleure stratégie. Selon eux, il est nécessaire pour s'extirper du pétrin de la politique de carbone de modifier fondamentalement

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billion a year in North America to create the needed energy innovations. Difficult public finances may make winning that full commitment difficult at present.

However, a “big” energy technology push can be large in the number and diversity of innovation efforts without necessarily being high in cost. Applying the social network architecture of modern information systems can enable a broadly distributed program for collaborative innovation that is open to wide participation across the NAFTA community. Such an “open innovation” model could spawn more and better technical fixes for carbon problems, faster, and at lower cost.

notre perspective, en s'éloignant de l'objectif de réguler les émissions pour plutôt se concentrer sur la création d'innovations technologiques permettant de « rendre l'énergie propre bon marché ».

Les partisans d'une stratégie centrée sur la technologie proposent des investissements publics permanents d'environ 20 milliards de dollars par année en Amérique du Nord pour créer les innovations énergétiques dont on aura besoin. Des finances publiques en mauvais état pourraient rendre un tel engagement difficile à ce stade-ci.

Un projet ambitieux de développement des technologies énergétiques peut toutefois être important en termes de nombre et de diversité des efforts d'innovation sans nécessairement coûter très cher. En appliquant l'architecture de réseau social des systèmes modernes d'information, on pourrait mettre en place un programme étendu d'innovation sur une base collaborative qui serait ouvert à une vaste participation au sein de la communauté de l'ALÉNA. Un tel modèle d'« innovation ouverte » pourrait voir émerger plus de solutions techniques mieux appropriées pour résoudre les problèmes qu'entraîne la production des émissions de carbone, et cela plus vite et à meilleur coût.

Introduction

Carbon policies—involving the development and use of fossil fuels—powerfully affect the relationships among the members of the North American Free Trade Agreement: Canada, the United States, and Mexico. Good carbon policies, such as those emphasizing technology innovation, can benefit the economic and strategic interests of all three NAFTA countries. Bad ones can have the opposite effect, aggravating conflicts, undermining trade relations, thwarting economic development, and weakening national security.

One glaring example of bad carbon policy is a proposal¹ by Jeffrey Schott and Meera Fickling of the Peterson Institute for International Economics, an influential Washington think tank.² Their proposal would use the NAFTA framework to impose a carbon-eliminating regulatory scheme, in the style of the failed Kyoto Protocol, across North America. Among other measures, it would cap permitted emissions of carbon-based “greenhouse gases”— from power plants, factories, motor vehicles and so on; and create an administered market for trading carbon-emission permits or credits.

In his prescription to improve the competitiveness of manufacturing both in Canada and across North America, Rob Wildeboer, chairman of Martinrea International, worried that such restrictive policies, pushed to an extreme, threaten to “castrate our economy and hurt millions of people.”³

There are substantial reasons to worry about Schott and Fickling’s proposed NAFTA strategy:

- Its hazard is not just potential but real and present: Despite the abject failure of global climate pact negotiations, and despite the current lack of support in the US Congress, government allies of the “climate protection” and “energy security” lobbies are proceeding to use regulations (such as rules imposed by the Environmental Protection Agency) and other means to accomplish the same results incrementally. Similar initiatives are under way at the state/provincial and local government levels.
- At a time of rising energy prices, it would reduce energy supplies and raise their costs even higher.
- The clash it embodies between the agenda of special interest groups and the broader interest in economic recovery and development of North America as a whole threatens to inflame discord among NAFTA’s member nations.
- It seeks to use a free trade agreement to constrain trade.⁴
- It largely ignores the imperative for technology innovation.

The bad news is that the sort of carbon-regulating scheme Schott and Fickling aim to expand via NAFTA already has been shown to impose burdensome costs with at best small benefits. For instance, University of Colorado Professor Roger Pielke, Jr. has found that

any emissions reductions from the European carbon-trading scheme have been “minuscule.”⁵ Similarly, Professor Richard Tol of the Economic and Social Research Institute in Dublin analyzed Europe’s regulatory plan to reduce carbon emissions by 20% in ten years—he estimated that the costs exceed the benefits by a ratio of 30 to 1.⁶

The good news is that an alternative, technology-focused approach is gaining broad support and promises to do far more to achieve tangible environmental, economic, and security benefits at much lower cost and with far less conflict.

Emerging Consensus for Technology-focused Solutions

For several years, Breakthrough Institute⁷ founders Ted Nordhaus and Michael Shellenberger have promoted a case for a fundamental shift in carbon policy strategies—broadly, away from emissions regulation and toward technology innovation. Experienced environmental activists, Nordhaus and Shellenberger recognized that the climate policy agenda environmentalists had pursued over two or more decades was doomed to fail, because it fundamentally misread public opinion: most people in developing countries, and even in wealthier nations, would not give up the desire for greater prosperity. Nor did it seem especially “liberal” to expect people to do so. Hence, they concluded that propaganda efforts aimed at changing the public’s hearts and minds to abandon economic growth to “save the planet” simply did not and would not work.

Rather, Nordhaus and Shellenberger counselled their fellow environmental activists to “break once and for all from green orthodoxy that focuses primarily on making dirty energy more expensive and instead embrace a strategy to *make clean energy cheap*.”⁸

The technology-focused policy framework has been echoed in various forms by a growing number of other policy groups and thought leaders in what they now call “the emerging consensus.” The thread that joins their diverse interests together is a fundamental fact: That the technology needed to achieve ambitious carbon policy goals does not currently exist.

“It’s not true that all the technologies are available and we just need the political will to deploy them,” says Nathan Lewis, professor of chemistry at the California Institute of Technology.

Lewis points out that the world’s energy demand is likely to triple by 2050, growing from about 14 terawatts (trillion watts) of power today to some 45 terawatts. Even with minimal population and economic growth, and a huge five-fold increase in efficiency, demand would still double.

To keep atmospheric CO₂ levels below 450 parts per million (ppm), Lewis calculates that over 94 percent of even the minimal 28 terawatts would have to be from carbon-free generation. Yet “clean” energy sources, including a small amount from renewable sources and several times more from nuclear power, currently provide only about 8 percent of global power supply.

Lewis shows that replacing nearly all current fossil-fueled power generation and merely doubling current power production would require an almost unimaginable expansion of current non-carbon power sources. For instance, getting only 10 terawatts from nuclear power would require building at least one new reactor every day or two for the next four decades. To get 10 terawatts of solar power by 2050, a million rooftops would need to be covered with the best photovoltaic panels now available every day until then.⁹

The call to accelerate energy innovation is supported by a 2006 report to Canada's federal government from its National Advisory Panel on Sustainable Energy Science and Technology. It argued that a substantial decline in the country's investment in energy research and development since the early 1980s urgently needed to be reversed. The panel called on the federal government to at least double its investment in energy R&D over the coming 10 years. And, reflecting the decentralized nature of the Canadian government, the panel also challenged each of the country's provinces to "more than double their relatively small current investment in energy R&D" over the same period.¹⁰

Along similar lines in the United States, the Obama White House's council of science and technology advisers recommended in a 2010 report that the federal government should greatly increase its funding for energy technology R&D while also reducing barriers to innovation.¹¹

And an expansive paper by Isabel Galiana and Christopher Green of McGill University¹² bolstered the case for a major worldwide commitment to greater investment in energy technology innovation. in a new book from the Copenhagen Consensus Center.¹³

Despite some variations among aligned analysts, the consensus strongly holds to the view that a greatly increased investment in breakthrough technology innovation is essential to resolving the mess of carbon-related energy and other problems. Moreover, its proponents all agree that the much expanded commitment of resources must be sustained over a long span of time, decades, for the needed technology fixes to be created and implemented at a scale sufficient to make a strategic difference.

The Big Push for Innovation

The exact amount of funding recommended for the energy innovation initiative varies among different experts and organizations, and also over time. However, \$20 billion (US\$) a year for North America is a representative figure that gives a sense of the scale of investment proposed.

The big push for technical fixes does face a number of thorny problems:

- It's not clear how big a public investment is really needed, or what it needs to be spent on. As Galiana and Green observe, "It is much easier to spend on R&D than assure the monies are well spent."
- Successful innovation requires more than just R&D.

- There are many social barriers to innovation to overcome: backlash, political gaming, rebound effects, hype, corruption, and others.

However, a “big” technology push can be large in the number and diversity of innovation efforts without necessarily being high in cost. A dozen or more specific tactics can promote innovation “on a budget.”¹⁴ Some involve reallocating government resources to more efficient activities. Others leverage private initiatives: offering lucrative prizes for innovative achievements; creating government-sponsored venture capital companies; and focusing the investments of private philanthropy.

Moreover, it is significant that the advocates of the technology-focused strategy generally agree that the structure of the big energy innovation push needs to be far more decentralized and diversified than traditional national technology programs.

North America: How

In their detailed prescription for “the NAFTA agenda on climate change,”¹⁵ Schott and Fickling usefully point out that the three major countries of North America have long recognized that environmental, economic, and other issues span the continent’s political borders. And in addition to NAFTA, which includes its own mechanisms for addressing a number of such issues, the neighbors have made a number of other specific agreements for managing cross-border interests.

Most pertinent to the particular problems involving energy and climate, Schott and Fickling observe that:

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.

However, in spite of (or perhaps because of) the failure of the United Nations’ Copenhagen conference to consummate an effective global pact, the major thrust of the Peterson Institute brief is to use the NAFTA structure to impose a climate protection regulatory scheme on North America.

Kyoto Redux

Schott and Fickling’s prescription lags far behind the growing consensus for an innovation-focused strategy. While their brief does make passing suggestions for some collaborative effort on a “smart grid” and “national energy efficiency standards,” it fails to recognize the need for breakthrough innovations to make clean energy cheap — in fact, the word “technology” appears not once in the entire Peterson Institute paper. Moreover, in its single-minded focus on climate protection, it largely ignores multiple other equally if not more important public policy goals.

The scheme promoted by Schott and Fickling is as obsolescent procedurally as it is strategically, in seeking to replicate the continually failed approach of UN climate negotia-

tions aimed at achieving a Grand Bargain among national governments. That strategy is based on the increasingly dubious presumption that such top-down, command-and-control regulatory sanctions would work, even if sharp differences in national and regional interests could be reconciled.

Even in the limited tri-national context of NAFTA, the Grand Bargain conceit seems unrealistic and impractical. Although the member countries may be treated as legally equal in their contractual relationship, the important qualitative differences between the countries, as opposed to just governments, is crucial to any workable collaboration.

Actually, the national governments of the countries do share a germane similarity: they are all federations. Each national government has constituent components—states or provinces, as well as indigenous tribal “nations”— with some significant degree of sovereignty.

Each of the three nation states of North America is big but not monolithic. Rather, they are highly pluralistic and richly diversified: ethnically, culturally, regionally, geographically, economically, demographically, environmentally, and in many other ways. The qualitative differences within the three countries inevitably season the relationships between each and the others.

In contemplating a feasible framework for North American carbon policy, those differences need to be realistically considered and accommodated. Schott and Fickling’s prescription mostly does not.

Instead, it portrays Canada as “paralyzed” and “deferring” its own actions on “climate change”— hence, carbon policy— to whatever policy course the US chooses. This view hardly fits with reports that Canadian diplomats actively worked in Washington to steer US energy and climate legislation in a direction congenial to Canadian interests.

Nor does Schott and Fickling’s view of Canada as a junior partner within NAFTA jibe with the perspective of the recent Macdonald-Laurier Institute book, *The Canadian Century: Moving Out of America’s Shadow*.¹⁶ As a Forbes magazine report last year observed, “Canada has avoided many of the problems that currently bedevil the US — mountains of public debt, a banking system in crisis, the housing debacle and a weakened currency.”¹⁷

In contrast, Schott and Fickling evince unbridled admiration for the Mexican government’s ardent advocacy of climate protection schemes: “Unlike Canada, Mexico has not predicated its actions upon those of the United States, and President Felipe Calderón has sharply criticized Canada for refusing to take a unilateral approach if necessary.” This is symptomatic of the way their brief distorts or ignores salient differences between the three countries to bolster its impracticable proposal.

Among those differences is that Mexico identifies its interests with those of the bloc of developing countries. As such, it tends to view the conduct of “rich” countries, such as the US and Canada, as the principal cause of climate hazards as well as of other environmental, energy, economic, etc. problems. Consistent with that perspective—which

has been central to the persistent failure of climate, trade, and other multinational negotiations between the so-called North and South—the solutions Mexico and other developing countries seek generally combine regulatory sanctions on the supposedly rich nations with generous transfers from them of money, technology, and other compensatory benefits to those that are yet developing and presumed “poor.” (Actually, the decline or stagnation of the developed economies of Europe and the US, concurrent with the rapid growth of China and other developing economies, is blurring this stereotype.¹⁸)

Uncritically reflecting that viewpoint, Schott and Fickling approvingly mention the vague intent unofficially expressed at the Copenhagen conference, and echoed in Cancun a year later, for the developed countries to provide \$100 billion a year to help developing countries adapt to “climate change.”

But Schott and Fickling go even further, to prescribe this:

Given the slow pace of progress of UN efforts..., Mexico would benefit from additional bilateral technical and financial assistance from its NAFTA partners, as well as 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.

The brief’s sanguine view of Mexico as not only a capable but leading partner in its continental climate protection scheme glosses over some glaring, inconvenient realities, notably including the virtual civil war currently festering between the Mexican government and violent criminal syndicates.

In contrast to Schott and Fickling’s vision of Mexico as inspirational partner in their Grand Bargain, some analysts now view Mexico as teetering on the brink of breakdown. Even its president shares that worry: “In unusually sombre remarks, President Felipe Calderón told the Mexican people Wednesday that criminal organizations were seeking to topple the state, violence was growing worse, kidnapping and extortion were rampant, and the government needs their help.”¹⁹

The collateral effects of Mexican drug-, weapons-, and human-trafficking have spilled over into the US and Canada. Yet Schott and Fickling also ignore the substantial potential of their proposed carbon credit exchange — already shown to be prone to fraud elsewhere²⁰ — to provide a further opportunity for criminal enterprise.

The North American community has a shared interest in resolving the carbon policy mess—but Schott and Fickling’s formula offers no solution. Rather, the emerging strategy for breakthrough innovation points to an effective path forward.

The Technology-focused Alternative

So far, both the arguments and the advocates for a technology-focused initiative have come mainly from within the United States, with US policy as its major target. The only limitation to extending its prescription to the continent as a whole is that its rationale is

sometimes tied to American concerns for “energy independence.” The latter objective usually emphasizes reducing US dependence on imports of “foreign oil.”

Some legitimate national security interests are indeed tied to America’s steadily growing dependence on imported fuel, chiefly petroleum. (Problems associated with imports of liquefied natural gas—LNG—have been tempered by the rapid expansion of domestic supplies of natural gas.) Not only do oil imports contribute to the US trade deficit, but some portion of the US petro-dollar outflow also goes to regimes that are hostile to American interests and/or that channel oil revenue to support terrorism.

Nevertheless, painting American concerns about energy security with too broad a brush blurs the important fact that the largest share of US oil imports comes from Canada and Mexico. Canada is one of America’s truest and most reliable strategic allies. Historically, US relations with Mexico have been marked by a more significant degree of friction and suspicion; and in the distant past, by conflict. But any security threats from Mexico stem from the traffic in drugs, guns, and arguably people—certainly not petroleum. Actually, with oil and gas revenues providing one-third of Mexican government revenues and the largest source of foreign currency, American energy imports from Mexico if anything bolster the ability of the Mexican government to tackle its current security problems.

American advocates of the energy innovation push often tie their case to the intense demand for job creation in the US. Of course, Canadians and Mexicans have keen desire for new jobs in their countries too. But legitimate domestic interests in employment should not be used to hinder expansion of the energy technology initiative across North America.

The predicate of NAFTA, after all, is that its members can prosper more together than they can in isolation. In practice, their three economies are so connected that completely autonomous action is not really an option. Arizona State University research analyst Stephen Blank emphasizes that the practical reality of the NAFTA community “...is not just trade integration—it is the integration of production systems.”²¹

The fact remains that NAFTA already exists, and legally binds most of the carbon policy interests of each member to those of the others. So the nationally focused energy innovation strategy promoted by several American “consensus” allies really must be reconceived within a North American framework.

Expanding the boundary of the policy and program concepts of the big innovation push to the North American community offers a number of potential benefits.

- With the US federal budget sinking beneath a rising flood of red ink, the prospects for Washington funding the technology push at the level recommended are uncertain at best. Expanding participation to Canada and Mexico can ease some of the budget constraint by bringing more sources of funding into play.

- A continental program also would expand human capital, intellectual capital, and the diversity and range of other resources.
- The continent-wide framework could be especially valuable to achieving the central goal to make clean energy cheap—particularly so that it can become an affordable alternative to fuel the growth of developing country economies.

Mexico can serve as a valuable laboratory for breakthrough innovations that can actually work in the developing world. (The indigenous tribal communities scattered throughout North America may contribute to that end as well.) A socially networked program design can engage the continent's less developed communities, as well as others seeking to rebound from acute economic distress, not merely as passive recipients of aid or "technical assistance" but as active collaborators.

If clean energy technology is going to contribute to the growth of developing economies, it needs to be cheap—but also attuned to local social, economic, and environmental conditions. The most effective way inventors, engineers, designers, and others can assure that an innovation meets those needs is to engage the intended users in its creation from the outset.

Several of its proponents agree that, to be cost-effective, the structure of the energy innovation program should be far more dispersed and collaborative than traditional national technology programs, which are commonly centralized in national laboratories and research institutes. A coalition of organizations convened by the Brookings Institution, for instance, has called for a network of dozens of regional energy innovation institutes, engaging participants from universities, industry, and finance.

That is a step in the right direction—but an even more granular and more broadly participative approach is warranted. The program needs to adopt the sort of digitally and socially networked "open" architecture that begat products such as the Linux operating system, the World Wide Web, Wikipedia, and thousands of software "apps" for smartphones and other devices.

In fact, economist Thomas Dapp of Deutsche Bank Research finds that the gathering power of social networking is driving the leading edge of corporate practice toward "open innovation." BMW, Dell, SAP, Lego, and other major companies are using social networks to open up their innovation efforts to broad participation.²²

InnoCentive is one of the major international networks facilitating this trend by bringing problem-solvers together with solution-seekers. As it explains its mission:

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tential of millions of people to work productively on pressing problems is the power of Open Innovation.

A network oriented, open innovation program design can achieve broad and diverse participation across North America more effectively and at lower cost than the traditional form of centralized, top-down, hub-and-spoke national programs. The energy innovation program should defocus activity to many diverse nodes at the edge, and nurture bottom-up innovation.

Conclusion

Carbon policy, and the associated development and use of fossil fuels, unquestionably poses serious economic, environmental, and security problems for the entire North American community.

NAFTA provides an established, potentially useful framework for developing collaborative solutions among the diverse, interdependent communities of its three member nations.

However, the failed cap-and-trade regulatory scheme recommended by Schott and Fickling is the wrong solution at the wrong time in the wrong place. It would conflict with the goals of free trade, economic recovery, and energy security, and inflame political conflict, all while offering at best minor environmental or other benefits.

Because the technology needed to solve carbon-related problems does not yet exist, an aggressive energy innovation push offers a far more appropriate, politically feasible, and promising path forward.

NAFTA makes extending participation in the energy innovation program throughout North America not only appropriate but beneficial. A decentralized, continent-wide program that takes advantage of the growing power of social networking will engage more resources, more people, more knowledge, more ideas, and more market opportunities.

Canada, the United States, and Mexico can do more to resolve the carbon policy mess together than they can alone. But a focus on innovation, not regulation, will be the key to success.

Endnotes:

1. Jeffrey J. Schott and Meera Fickling, *Revisiting the NAFTA Agenda on Climate Change*, Policy Brief PB10-19, Peterson Institute for International Economics, July 2010.
2. See <http://www.iie.com>.
3. Rob Wildeboer, *Martinrea and Manufacturing Competitives*, MLI Commentary, Macdonald-Laurier Institute, February 7, 2011.
4. By seeking to stem what they call “leakage”—migration of industry to less restrictive jurisdictions—virtually all climate protection schemes tend to work against the objectives of free trade.
5. Roger S. Pielke, Jr., “*Minuscule*”: *Effects of European ETS on CO2 Emissions*, blog entry, September 13, 2010; <http://rogerpielkejr.blogspot.com/2010/09/minuscule-effects-of-european-ets-on.html>.
6. Richard S.J. Tol, *The Costs and Benefits of EU Climate Policy for 2020*, Copenhagen Consensus Center, June 1, 2010.
7. See <http://www.thebreakthrough.org>.
8. Ted Nordhaus and Michael Shellenberger, “The Green Bubble Bursts,” *The Los Angeles Times*, September 30, 2008; emphasis added.
9. Sharon Begley, “We Can’t Get There From Here,” *Newsweek*, March 14, 2009; several detailed presentations and publications of Lewis’ energy analyses can be found at: <http://nsl.caltech.edu/energy>.
10. National Advisory Panel on Sustainable Energy Science and Technology, “Funding of Canadian Energy S&T,” Chapter 2, *Power Connections: Priorities and Directions in Energy Science and Technology in Canada*, Office of Energy Research and Development, Natural Resources Canada, 2006.
11. Office of Science and Technology Policy press release, “Presidential Report Provides Roadmap for Federal Role in Transforming America’s Energy System,” November 29, 2010; also cf., President’s Council of Advisers on Science and Technology, *Report to the President on Accelerating the Pace of Change in Energy Technologies Through an Integrated Federal Energy Policy*, November 2010.
12. Isabel Galliana and Christopher Green, *An Analysis of a Technology-led Climate Policy as a Response to Climate Change*, Copenhagen Consensus Center, August 2009.
13. Bjorn Lomborg, ed., *Smart Solutions to Climate Change: Comparing Costs and Benefits*, Cambridge: Cambridge University Press, September 2010. N.B.: The Galliana and Green paper appears as Chapter 7.
14. A number of tactics—not specific to energy innovation but mostly applicable—are described in: Robert D. Atkinson, et al, *Innovation Policy on a Budget: Driving Innovation in a Time of Fiscal Constraint*, The Information Technology & Innovation Foundation, September 24, 2010; <http://www.itif.org/publications/innovation-policy-budget-driving-innovation-time-fiscal-constraint>.
15. Jeffrey J. Schott and Meera Fickling, *Revisiting the NAFTA Agenda on Climate Change*, Policy Brief PB10-19, Peterson Institute for International Economics, July 2010.
16. Brian Lee Crowley, Jason Clemens, and Niels Veldhuis, *The Canadian Century: Moving Out of America’s Shadow* (Bolton, ON: Key Porter Books, 2010).
17. Nathan Vardi, “The Canadian Century?,” *Forbes*, February 11, 2010.
18. The World Bank classifies Mexico among the group of “upper middle income” countries, which includes Turkey, Chile, Brazil, and the Russian Federation.
19. William Booth, “Mexican president calls for nation’s help to curb defiant, violent criminals,” *The Washington Post*, August 11, 2010; <http://www.washingtonpost.com/wp-dyn/content/article/2010/08/07/AR2010080702604.html>.
20. For example, viz., Rowena Mason, “The great carbon trading scandal,” *The Telegraph*, January 30, 2011.
21. Stephen Blank, *Driving Continental Integration: Auto Manufacturing and the Future of North America*, MLI Commentary, Macdonald-Laurier Institute, May 12 2011.
22. Thomas Dapp, “Promoting Innovation via Social Networks,” presentation, American Institute for Contemporary German Studies, Washington, DC, December 2, 2010; http://www.aicgs.org/eventlist/view.aspx?ID=331&top_parent=156



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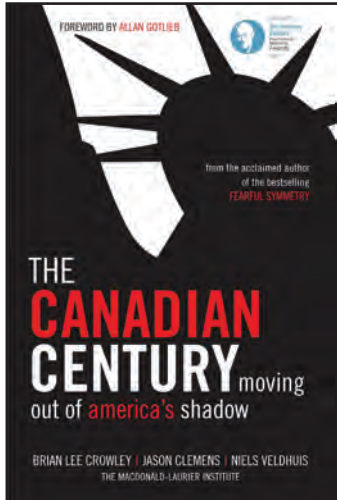
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