

CLIMATE CHANGE: THE CASE FOR A CARBON TARIFF/TAX

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The opting-on voluntarism of Kyoto, while admirable, is not adequate for addressing the climate-change challenge. This is because it excludes many of the highest polluting countries and, relatedly, because it cannot cope with the serious environmental-free-riding issues. The first of our proposed two tiers addresses free riding via a nationally imposed carbon import tariff combined with an equivalent domestic carbon tax. This “tradables” tier would engage global exporters (and importers) and not governments. The second tier would involve governments and could be Kyoto-like with commitments related to emissions, standards, cap-and-trade systems, etc. The first tier would, constitutionally, fall under federal jurisdiction, while all levels of government would hopefully play key roles in the second tier.

Certes admirable, l'adhésion volontaire au protocole de Kyoto ne suffit pas à relever le défi des changements climatiques. D'abord parce qu'elle exclut de nombreux pays très polluants et, en corollaire, parce qu'elle n'offre aucune solution au grave problème du resquillage. Les auteurs proposent de s'attaquer à ce dernier problème par le biais d'un tarif national à l'importation de carbone et d'une taxe équivalente sur les émissions de carbone applicables aux exportateurs (et importateurs) mondiaux. Ce premier niveau d'intervention serait de compétence fédérale et pourrait faire l'objet de mécanismes d'échange. Le second niveau d'intervention proposé par l'auteur viserait les gouvernements et pourrait s'inspirer de Kyoto en prévoyant des engagements en matière d'émissions, de normes, de plafonds, de systèmes d'échange, etc. Sur le plan constitutionnel, tous les ordres de gouvernement joueraient idéalement un rôle clé à ce niveau.

Canada's National Round Table on the Economy and the Environment (NRTEE) has recently recommended that we adopt a carbon tax as the preferred policy instrument for addressing the climate change challenge. For its part, the Canadian Council of Chief Executives (CCCE) welcomed this NRTEE report, noting that the proposal echoed the earlier CCCE Policy Declaration in recognizing the need for economy-wide signals to pressure businesses and individuals alike to reduce emissions of greenhouse gases (GHGs). Moreover, a market-based carbon tax also came in first place in IRPP's Canadian Priorities Agenda, an impressive agenda-setting and policy evaluation exercise involving nearly 50 of Canada's recognized policy analysts and designed to identify the country's top policy priorities.

As a general principle, a carbon tax on all emissions is a decidedly preferable approach to the opting-in/voluntarism of Kyoto. And Kyoto is arguably superior to the recently embraced Bali Action Plan, which contains no binding commitments on signatories. While the Kyoto/Bali initiatives are obviously important for cata-

pulating climate change to the top of the global policy agenda and may well be of signal importance in triggering creative and effective programs in individual nations, Bali will almost certainly fall far short of expectations. This is so because while there are very substantial economic costs to “volunteering,” there is no guarantee that recalcitrant nations will follow through and, therefore, no guarantee the climate change challenge will be successfully addressed.

The Harper Conservatives appear to be taking an intermediate position between reliance on the market (and expressly on putting a price on carbon emissions) and non-binding voluntarism. Specifically, the government is, thus far at least, rejecting the NRTEE proposal for a carbon tax in favour of a regulatory regime that would target the big polluters in a “make the polluters pay” approach. Operationally, the concerns here are that (1) the targeted command-and-control approach could be prone to very substantial industrial and even provincial lobbying for regulatory exemptions and (2) it would be very difficult to

ensure that Canadian firms do not resort to the international economy to circumvent this regulatory approach. This latter observation leads directly to the core difficulties with most of the existing proposals and, what is essentially the same thing, to the core building blocks of our proposal.

Whether one relies on prices/taxes, on some version of a command-and-control regulatory regime with financial penalties or on Kyoto's moral

rifice significant economic growth to reduce our emissions, we ought at the same time to ensure that the overarching international approach we are working within has some potential for successfully addressing the global climate change issue. We must also ensure that our efforts do not subject Canadian firms to unfair competition in domestic and external markets from firms located in non-participating countries.

Whether one relies on prices/taxes, on some version of a command-and-control regulatory regime with financial penalties or on Kyoto's moral voluntarism, the bottom line must surely be to ensure that the domestic economic costs associated with the chosen system will be validated by successfully controlled carbon emissions. Phrased differently, success on the climate change front will be beyond our grasp unless the emerging economic superpowers like China, India, Brazil, Indonesia and others are effectively co-opted into the process.

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In order to stress this point, consider China. It is already the largest user of (dirty) coal and is planning to open a new coal-fired power plant every week for the foreseeable future. Writing in the *New York Times*, Andrew Revkin reports that "even if the established industrial powers turned off every power plant and car right now, unless there are changes in policy in poorer countries the concentration of carbon dioxide in the atmosphere could still reach 450 parts per million — a level deemed unacceptably dangerous by many scientists — by 2070. (If no one does anything, that threshold is reached in 2040.)" The message that we draw from this is that if we are going to sac-

Our view is that the proposals on the table do not meet these tests (although the carbon tax could be reworked to provide a Canadian version of what we are proposing on a global scale). Beyond the inclusivity issue addressed above, the key flaw in all the proposals is the failure to come to grips with "free riding." There are at least two sorts of free-rider problems. The first is that firms in non-signatory countries, or non-complying countries, will have an advantage in terms of exporting to complying countries, and to international markets generally. The second is that firms in complying countries will have enhanced incentives to outsource from, or offshore to, non-complying countries, and then re-export back to their home countries, thereby avoiding the domestic environmental regime. Moreover, as China, Brazil, India and the others continue their economic ascent, these free-riding concerns of complying countries will be correspondingly magnified and will surely test the resolve of those countries to hold to their commitments.

Not surprisingly, our approach to climate change begins with addressing these international free-rider issues, and then complementing and supplementing them with appropriate domestic policies. Moreover, the target group for addressing free riding is not governments but, rather, multinational enterprises. But governments cannot be left out of the solution. Accordingly, we are led to a two-tier approach. The first tier is concerned primarily to ensure

that the carbon footprint of internationally traded goods and services attracts the same carbon tax burden as that of non-traded domestic goods and services. Readers may want to refer to this as the "tradables" tier. The second tier deals with the whole panoply of non-tax measures to which governments

may resort to effect a reduction in GHG emissions. While the tradables tier will focus on firms, often multinational firms, the second tier will focus, in Kyoto fashion, on governments. We deal with these in turn.

The analytical underpinnings of the tradeables tier exist, in an embryonic stage, in California's proposal to measure the carbon footprint of its energy imports right through to their source. If the resulting carbon emissions are too high, then California will ban such imports into the state. This California approach is also adopted in the *Energy Independence and Security Act of 2007*, signed by President Bush in December. Section 526 of this statute precludes US federal agencies from purchasing vehicle fuel derived from non-conventional sources unless its carbon footprint is less than that of conventional petroleum. How will Alberta and the oil sands producers react? We think that it is a very safe bet that the energy patch (and the province) will not want to lose access to US government agencies and the California market (and potentially to the entire US mar-

ket as more states follow California's lead). Hence, they will take significant measures to conform to the California standard. But the defect in the California approach is that it is a "binary" model — Alberta either would be able to export energy from the oil sands to California or it would not be able to do so. There needs to be a middle ground, as it were. Much better, then, would be for California (had it the legislative power) to impose an import tax or tariff on the carbon content of the oil or gas.

Thus, the tradables tier of our proposal reworks the California approach by converting the regime into a national carbon tariff or a carbon import tax that would be levied on the carbon footprint of *all imports from all countries* (including on the carbon emissions components relating to the logistics component, especially shipping, throughout the supply chain). Consistency, as well as compliance with the international trading regime, would require that a concurrent carbon tax be applied to all domestically produced and consumed products. Without this, a non-complying nation could use a carbon tariff to protect domestic producers from import competition, a practice for which countervail would be an appropriate remedy. The impact of this first tier obviously would be greater the larger the number of participating countries. Applied globally, it would make a major contribution to meeting the climate change challenge. The mechanism, however, would be a powerful and effective policy instrument whether utilized globally, regionally — for example, within NAFTA or the EU — or by a single country.

Note that this import tariff would be levied against foreign-based exporting firms' products, not against countries per se. Indeed, the import tariffs that will be levied on many exports from developing coun-

tries will actually be on the products of corporations headquartered in the G7 and other developed industrial countries. By way of a relevant example here, *Sunday Times* economics editor David Smith notes (in *Growling Tiger, Roaring Dragon*) that were Wal-Mart a country it would be China's fourth-largest trading partner. Under this first tier, products imported into the US by Wal-Mart would be subject in the US to a carbon tariff on the carbon emissions of their entire production processes. Even with a carbon tariff in place, outsourcing or locating production offshore, with its attendant job loss and related problems, will no doubt continue to be economically efficient for some

Several further related tax issues are best dealt with in this context. The first relates to whether the carbon tax should be levied on imports or on exports. That is, should it be administered on a destination or origin basis? Properly administered, both bases would provide effective incentives for firms producing internationally traded goods to reduce their carbon footprints.

firms. But outsourcing to take advantage of lax environmental policies in pollution havens will be subject to this carbon footprint tariff. The intent, and the result, will be that environmental free riding will not be rewarded.

We presume that this tradables tier will be much more amenable to the US than was Kyoto, because both types of free-rider issues are addressed. Indeed, were the US and the EU to agree to this carbon import tariff (with this usage validated by domestic equivalents on non-traded goods), a formal international agreement might not even be required for the functioning of the first tier. This is because firms wanting

to export into the huge US or EU markets, as one assumes that they will, will be subject to the carbon tariff. They will thus have an incentive to reduce the carbon footprint of their products in order to maintain their competitiveness in the US/EU markets. Even if China decides not to be part of the tier-1 system (i.e., decides not to have a domestic carbon tax), exporters of both intermediate and final goods from China will, under a destination-based system of carbon tariffs and taxes, still be taxed in the US/EU and other markets. Therefore, this first tier is more about ensuring environmental compliance by internationally oriented firms than it is about ensuring that countries, per se, are onside. In addition, since the proposed carbon tariff/tax system is destination based, it would ensure that producers located in complying nations would not, as a consequence of this system, suffer any competitive disadvantage when selling into non-complying nations.

While the first tier deals largely with companies and the use of the tax and tariff systems both to reduce GHG emissions and achieve equity between domestic and internationally traded goods and services, the second tier would address the whole panoply of non-tax measures that governments and countries may use to effect emission reductions beyond those sought by tax measures. These could include such disparate measures as Kyoto-style reductions, cap-and-trade systems, automobile mileage standards, conservation measures, incentives for the use of energy-efficient appliances, carbon sequestration requirements and energy-conserving infrastructure, to name but a few. Since the operation of tier 1 largely eliminates international free riding, a Kyoto-type approach may work quite well for tier 2 initiatives.

While it no doubt remains important to strive for binding commitments from all countries, developing

countries may be accorded some second-tier flexibility in terms of both commitments and timing to help facilitate participation. Phrased differently, this is where the rhetoric adopted by many of the developing countries has relevance: we were not an important part of the problem in the first place, so why make us a key part of the solution when our real priority is exiting from poverty. This argument has little resonance with the first tier, however, since we are dealing in large measure with multinational enterprises whose home countries could be anywhere. It is also somewhat disingenuous in the case of countries such as China — which, despite its high poverty rate, is already the world's largest contributor to GHG emissions — and India, which, more by default than by design, has pursued environmentally disastrous population policies.

A further inducement for developing countries to commit themselves to the second tier is that reducing the carbon footprint of their domestic infrastructure and production will also serve to reduce the carbon content of their exports and, therefore, make their economies more attractive for exporting, outsourcing and offshoring.

As readers have by now realized, the devil is clearly in the implementation details (and in particular the details relating to the carbon tariff). What will be needed is a set of “carbon auditors,” perhaps coming under the umbrella of an international blue-ribbon panel, whose job it will be to measure carbon emissions. The Canadian Institute of Chartered Accountants has for over a decade now turned its attention to the measurement of carbon footprints, and we assume that there is considerable expertise in this area in most developed countries. Initially, some corners may need to be cut — for example, putting all traded goods with roughly similar carbon foot-

prints in a small number — say, a half-dozen or so — of broad categories. The country panel of auditors would then assign average carbon levels by country for each of the initially selected categories. Since it will take a while for the first tier to be

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implemented, there will be considerable time to then undertake more detailed carbon footprint measurements. Individual firms would be able to challenge these assigned levels by requesting (and paying for) firm-specific carbon auditing. There will, of course, be start-up difficulties in compiling requisite carbon footprint data, but these should not be exaggerated. Several companies, for example, have already decided voluntarily to provide environmental labelling for their products. While the problems will be severe, they are not insurmountable. Nonetheless, it might be wise to begin with low carbon-tax and tariff rates in order to accommodate any early growing pains. Once up and running the rates could then be raised to the desired levels.

An alternative to a tier 1 comprising a domestic carbon tax and a carbon tariff on imports would be a version of an international value-added tax or VAT on carbon emissions. Perhaps more felicitously, it might be described as a CAT, or carbon-added tax. Analogously to existing VATs, this would impose a tax on the cumulative carbon footprint at each stage of the production/transportation process, with tax credits for the carbon taxes paid previously on inputs. The net result would be a tax on the carbon added at each stage of the production/transportation process, one where

the self-interest of producers concerned to minimize their own CAT liabilities would help ensure the proper identification of the carbon footprint of their inputs. In an international context, the CAT paid in one country would be rebated when the product is

exported to another, and the importing country would apply its carbon tax to the cumulative carbon footprint of the product at the time of importation. Again, this is similar to the operations of the GST, our version of the VAT: we rebate the tax on exports and apply the GST to the value of imports.

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And, in either case, the consumers in the importing country would tend to bear much of the burden of the CAT in the form of higher prices for items with larger carbon footprints. This would have the desirable effect of tending to redirect consumption to substitute products with smaller carbon footprints. The international allocation of the revenues, however, would depend critically on the administrative principle chosen. An export or country-of-origin tax would allocate the revenues from the carbon tax to where the pollution occurred, while an import or country-of-destination tax allocates the revenues to where the product is consumed. Our preference for an import or destination-



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A temperature inversion in Montreal on a late winter's day. The authors make a case for a carbon tax as a way to address climate change.

based tax follows from the possibility that some countries, as part of a strategy of promoting exports, might decide not to institute an export tax or, where such a tax was formally adopted, to administer it in a lax and ineffective manner. On the other hand, it seemed appropriate to assume that countries will be much more likely to levy the import tax, since this will level the playing field for their own producers. Again, there are both technical and political factors at play here that will need greater attention.

A second issue has to do with how the global trading system and the WTO will look upon the tier 1 carbon measure, whether it be a carbon tariff or a CAT. So long as national environmental policies do not discriminate arbitrarily between foreign and domestic products, or between products imported from different trading partners, there should be no problem: if the carbon tariff matches the rate of domestic carbon tax, or if the CAT is applied uniformly to both domestically produced

and imported goods, it may be argued that no discrimination is involved. The tax or tariff burden would certainly differ as between imports with differing carbon footprints, but this hardly constitutes arbitrary discrimination. In the case of the CAT, since there is no WTO problem with international accommodation of VATs, the fact that this CAT or carbon-added tax can be designed to resemble a VAT should help its acceptance by the WTO. Nonetheless, the intent and the pre-

sumed effect of tier 1 will be to reduce international trade when this trade is based on products gaining a competitive advantage because they do not embody the cost to society of GHG emissions. Other things being equal, for example, a case of locally produced beer would have a smaller carbon footprint than one shipped

important, in many ways, than the jurisdictional or geographic destination of CAT revenues is their use: what is vital is that they be used to facilitate the largest attainable reduction in GHG emissions. The CCCE wants carbon taxes to be revenue neutral, so that other taxes should be reduced apace. This would

pliancy. Such an outcome, however, is likely as long as the federal government fails to introduce measures that are generally perceived as being commensurate with the seriousness of the problem. In such circumstances, is it hardly surprising, for example, that Quebec, Manitoba and British Columbia are talking of adopting California's average-fuel-economy standard rather than the weaker standard adopted by the Bush administration and subsequently proposed by our federal minister of transport.

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from Europe. Hence, the carbon tax on the imported beer would be higher, again all else except shipping being equal. In the first instance, this will presumably reduce trade. What happens over the longer term will depend on how firms react to the taxation of carbon emissions: the foreign firm may set up local production facilities, for example.

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Levy a CAT at the federal level has the further advantage that it ensures at least a minimal, effective GHG emissions response across the nation, even if, as seems likely, some provinces choose to pursue excessively tolerant carbon policies or to rely primarily on tier 2 initiatives. As with the GST, however, there would certainly be an opportunity for provincial CATs harmonized with the federal CAT; harmonizing provinces would simply add their provincial rate (dollars per tonne of carbon) to the federal rate.

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yield a "double dividend," with reductions both to GHG emissions and to other taxes. While personal income tax cuts may be appropriate — particularly refundable credits to minimize the impact of a CAT on low-income recipients — offsetting cuts to corporate income taxes (CITs) are more questionable: given the impact of current energy prices on the profitability of the energy sector, CIT cuts may accrue disproportionately to precisely those companies that are major contributors to GHG emissions. This would tend to weaken the incentive provided by the CAT for firms to lessen their carbon footprints. However, there are other options for CAT revenues. These could include an investment pool to foster research on carbon-reducing technologies, such as carbon sequestration and perhaps clean coal technologies, and a fund to make carbon-reducing technologies available to developing countries to help them adhere to the tier 2, commitments. Very importantly, revenues from a CAT could also be used to underwrite tax credits to firms that undertake carbon-reducing investments.

Finance Minister Flaherty has expressed concern about a piecemeal approach to GHG emissions and the environment. Certainly a patchwork quilt of environmental measures complicates greatly the issue of com-

Finally, while many of the above complications appear daunting, some perspective must be maintained. There seems to be rather surprising acceptance on the part of many in the policy community of the NRTEE's proposal for a domestic carbon tax. Yet, if this proposal is to address the two free-rider problems raised above, Canada will need to supplement the domestic carbon tax with the proposed carbon import tariff. Alternatively, if our domestic response were to institute a CAT, this would have to be applied to imported goods at the point of entry. Therefore, all the complexities in our proposal are also part of an effective domestic carbon tax. If we have to go to these lengths in any event, why not employ the expertise of the international community in carrying out the carbon emissions auditing and in designing the institutional structure that will be needed for a system of global carbon tariffs? In this way Canadians can have more confidence that our efforts will be part of a global action plan that will succeed in taming the climate change challenge.

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