



# Costly, ineffectual and protectionist carbon tariffs

Why carbon tariffs shouldn't be adopted to offset the cost of carbon

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## 1.0 ABBREVIATIONS

CAT	Cap and Trade
EPA	Environmental Protection Agency
ETS	Emissions Trading Scheme
EU	European Union
EU ETS	European Union Emissions Trading Scheme
GATT	General Agreement on Tariffs and Trade
MFN	Most Favoured Nation
PPMs	Process and Production Methods
ROOs	Rules of Origin
UN	United Nations
US	United States
USD\$	United States Dollar
WMO	World Meteorological Organisation
WTO	World Trade Organisation

## 2.0 EXECUTIVE SUMMARY

- Few countries will have domestic carbon price signals in the short to medium term. As a consequence, governments which have adopted carbon price signals are considering the introduction of carbon tariffs to offset the extra costs imposed on domestic industries.
- Based on IPA calculations (see Annex), to appropriately reflect the added cost of a carbon price signal in the United States, it is likely a ten and a half per cent average carbon tariff would be required for carbon-intensive products adding billions of dollars onto imports for consumers.
- This cost will harm the competitiveness of the domestic industries that carbon tariffs are designed to protect, by increasing the price of imported components into manufactured products.
- Calculating the carbon-input component of an individual product is extremely complex. Attempting to do so would require a vast regulatory structure.
  - The complexity is substantially worsened when a product includes components developed in a global supply chain, where carbon emissions vary from country to country, as will the value of potential carbon price signals.
- The introduction of carbon tariffs is likely to violate the obligations on World Trade Organisation members under the General Agreement on Tariffs and Trade.
- Carbon tariffs are costly, ineffective and protectionist and their costs that far exceed their benefits.

### 3.0 INTRODUCTION

Many developed country governments are in the process of negotiating for the introduction of carbon price signals to incentivise business and consumers to reduce their carbon footprint. Individual European countries and the European Union already have Emissions Trading Schemes, Australia's Parliament is still considering the introduction of its scheme, and the United States Senate is currently considering a proposal for the introduction of a CAT scheme to be voted on in early 2010.

But the inclusion of a carbon price signal raises serious concerns about their impact on domestic industries competing against imports that don't include the cost of carbon. As a consequence some activists and politicians are arguing for the introduction of carbon tariffs on imported goods that come from countries that do not have a domestic carbon price signal.

The French President, Nicholas Sarkozy, has argued for the introduction of carbon tariffs, and a requirement for their introduction is included in the Waxman-Markey Bill before the United States Senate.

This research paper will explore the issues surrounding carbon tariffs. In particular this paper will seek to define what a carbon tariff is, where proposals for them came from, what is currently being proposed and where they are likely to be introduced, their legality under World Trade Organisation rules, the complexities of their introduction and what their cost will be.

#### 4.0 WHAT IS A CARBON TARIFF?

A carbon tariff is a unilaterally-imposed trade-restrictive measure levied on imports of goods and services from countries that do not have a domestic price signal. Carbon tariffs can take the form of a direct tax reflecting the perceived carbon footprint of a good or service, or the obligation that carbon emission credits must be purchased from a CAT/ETS to reflect the carbon footprint of the imported good.

The implementation of a carbon tariff differs depending on how the domestic emissions regulation is imposed, that is, as a carbon tax, or as part of a CAT/ETS. While there is no certainty about how a carbon tariff would reflect the domestic regime, it is speculated that under a domestic carbon tax it would be most straightforward to impose an equivalent border tax reflecting the nature of the domestic scheme; and in a CAT/ETS environment for emissions credits to be purchased reflecting the carbon footprint of the goods or services.<sup>1</sup>

There are other options for implementing a carbon tariff such as countervailing duties<sup>2</sup> or by requiring importers to meet a carbon intensity standard equivalent to that applied to domestic producers<sup>3</sup> but these options have been given less consideration than those above.

Carbon tariffs aim to neutralise the cost of a domestic carbon price signal, to prevent the leakage of business activity into economies without a carbon price signal commonly referred to as carbon leakage, and to encourage other countries to adopt similar emission reduction policies.<sup>4</sup>

Carbon leakage a concern because the consequences could include consumers and business buying goods from countries without carbon price signals or that industries will move countries to those without carbon price signals. In both situations global carbon dioxide emissions will not be reduced and the purpose of introducing a carbon price signal will be undermined.<sup>5</sup> For example, in the EU, with a carbon price signal there are significant economic gains to be made from moving carbon-intensive industries like cement, steel, aluminium and chemical sectors to countries without a carbon price signal.

Carbon tariffs are considered necessary in the absence of a comprehensive, binding international agreement to reduce carbon emissions. Because of "the truly global nature of climate change and the limited ability of any one country to address it unilaterally"<sup>6</sup> the absence of global obligations could prompt carbon leakage to countries without a carbon price signal.

It is speculated that domestic industries are more likely to accept the obligations of a carbon price signal if they are afforded the protection of a carbon tariff to offset any impact it may have on their competitiveness.

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<sup>1</sup> Houser, T et al., 'Leveling the Carbon Playing Field: International Competition and US Climate Policy Design', Peterson Institute for International Economics, World Resources Institute, 2008, retrieved 18/11/09 at <[http://pdf.wri.org/leveling\\_the\\_carbon\\_playing\\_field.pdf](http://pdf.wri.org/leveling_the_carbon_playing_field.pdf)>, page 30.

<sup>2</sup> A countervailing duty is an import duty added to imports in order to offset subsidies granted to exporters by the exporting country in an attempt to return the imported product to its market price and ensure a level playing field.

<sup>3</sup> Houser, T et al, above n 1, page 30.

<sup>4</sup> Houser, T et al, above n 1, page 30.

<sup>5</sup> James, S 'A Harsh Climate for Trade: How Climate Change Proposals Threaten Global Commerce', *Trade Policy Analysis*, CATO Institute, September 2009, no. 41, retrieved 18/11/09 at <<http://www.freetrade.org/files/pubs/pas/tpa-041.pdf>>.

<sup>6</sup> Bordoff, J 'International Trade Law and the Economics of Climate Policy: Evaluating the legality and effectiveness of proposals to address competitiveness and leakage concerns', Forthcoming in *Climate Change, Trade and Competitiveness: Is a Collision Inevitable?*, Brookings Global Economy and Development, 2008, retrieved 18/11/09 at <[http://www.brookings.edu/events/2008/~media/Files/events/2008/0609\\_climate\\_trade/2008\\_bordoff.pdf](http://www.brookings.edu/events/2008/~media/Files/events/2008/0609_climate_trade/2008_bordoff.pdf)>, page 27.

#### 4.1 The history of carbon tariffs

The first concrete proposals for the introduction of a carbon tariff originated in the European Union (EU), and specifically France, as a response to concerns about the impact the introduction of a carbon price signal under an ETS would have on the competitiveness of local producers against imports from countries that do not have a carbon price signal, including the United States.<sup>7</sup>

By 2002 a United States Business Council for International Business Report flagged the emerging push by international NGOs, including Greenpeace International and Friends of the Earth Europe, for trade measures to be introduced against the imports from countries that were not compliant with their obligations under a ratified Kyoto Protocol.<sup>8</sup> In 2006 the idea resurfaced when the French Prime Minister, Dominique de Villepin, suggested that carbon taxes be introduced against countries refusing to join the successor agreement to the Kyoto Protocol.<sup>9</sup>

Current proposals for carbon tariffs are wide and varied, but the biggest proponents are in the EU and US. In response to the introduction to the EU ETS,<sup>10</sup> European governments proposed the introduction of a carbon tariff to offset their self-imposed carbon price signal.

But to date there is no consensus on whether a carbon tariff should be imposed. Current French President, Nicolas Sarkozy, has publicly supported the introduction of carbon tariffs that would require importers to buy emissions permits from the EU ETS that reflect the carbon footprint of manufactured goods.<sup>11</sup>

However there has been longstanding opposition in European governments with then EU Trade Commissioner, Peter Mandelson, dismissing the idea in 2006 describing proposals as "highly problematic under current WTO rules and almost impossible to implement in practice"<sup>12</sup> as did Germany's former State Secretary for the Environment, Matthias Machnig, who argued in mid-2009 that carbon tariffs would be imposing "eco imperialism" on developing nations,<sup>13</sup> supported by the Swedish government that stated it is "absolutely against each try to make use of green protectionism."<sup>14</sup>

The German government's opposition has continued following their recent election stating they are "oppose(d to) the introduction of climate tariffs and CO<sub>2</sub> taxation... at the EU level."<sup>15</sup> However the EU has recently taken a step toward climate trade measures by directing member States to limit

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<sup>7</sup> Houser, T et al, above n 1, page 29.

<sup>8</sup> Deal, T 'WTO Rules and Procedures and their Implication for the Kyoto Protocol', A discussion paper, *United States Council for International Business*, 2008, retrieved 18/11/09 at <<http://www.uscib.org/index.asp?documentID=2323>>, page 3.

<sup>9</sup> McKibbin, W & P Wilcoxon, 'The Economic and Environmental Effects of Border Tax Adjustments for Climate Policy', *International Economics*, Lowy Institute for International Policy, February 2009, no. 109 retrieved 18/11/09 at <<http://www.lowyinstitute.org/Publication.asp?pid=978>>, page 3.

<sup>10</sup> Ellerman, D & P Joskow, 'The European Union's Emissions Trading System in Perspective', *Massachusetts Institute of Technology*, retrieved 18/11/09 at <<http://www.pewclimate.org/docUploads/EU-ETS-In-Perspective-Report.pdf>>.

<sup>11</sup> Wynn, G 'EU Considers Carbon Tariff as Part of Climate Push', *Reuters*, 7 January 2008, retrieved 18/11/09 at <<http://www.planetark.com/dailynewsstory.cfm/newsid/46275/story.htm>>.

<sup>12</sup> Deal, T, above n 6, page 4.

<sup>13</sup> Shanley, M and I Wissenbach, 'Germany calls carbon tariffs "eco-imperialism"', *Reuters*, 24 July 2009, retrieved 18/11/09 at <[http://www.reuters.com/article/internal\\_ReutersNewsRoom\\_BehindTheScenes\\_MOLT/idUSTRE56N1RJ20090724](http://www.reuters.com/article/internal_ReutersNewsRoom_BehindTheScenes_MOLT/idUSTRE56N1RJ20090724)>.

<sup>14</sup> *Ibid.*

<sup>15</sup> German Coalition Agreement 2009 retrieved 18/11/09 at <<http://www.spiegel.de/media/0,4906,21958,00.pdf>> and English translation of relevant provision at <<http://www.eurotrib.com/story/2009/10/24/95910/608>>.

biofuel imports sourced from products that don't dramatically reduce emissions against fossil fuel alternatives.<sup>16</sup>

By comparison, the inclusion of carbon tariffs is well-advanced in the US. US Senate Finance Committee Chairman Max Baucus has declared that the US "must devise a border measure, consistent with (its) international obligations, to prevent the carbon leakage that would occur if US manufacturing shifts to countries without effective climate change programs."<sup>17</sup> To this end the *American Clean Energy and Security Act*, commonly referred to as the Waxman-Markey Bill, is currently being considered by the US Senate following its recent passage through the House of Representatives. The purpose of the Bill is principally to establish a US CAT/ETS scheme, but includes a requirement for carbon tariffs on goods imported from jurisdictions with less stringent emissions regulations.<sup>18</sup> Under the Bill the implementation of a tariff would not come into effect until 2018, should the President be unsuccessful in negotiating an international agreement to reduce global carbon emissions.<sup>19</sup>

Equivalent legislation currently being considered by the Senate, *The Clean Energy Jobs and American Power Act*, commonly known as the Kerry-Boxer Bill, includes under Section 765 the flexibility for the inclusion of a carbon tariff "designed to work in conjunction with provisions that allocate allowances to energy-intensive and trade-exposed industries."<sup>20</sup> And it remains the expectation of the current Obama Administration that any Bill that finally passes the House of Representatives and the Senate will include provisions for "fair competition" between US and foreign producers, which is considered a thinly veiled reference to a border measure.<sup>21</sup>

As an interesting comparison, the design of the Australian ETS has explicitly rejected the inclusion of a carbon tariff. Instead the Australian scheme includes the allocation of free permits for emissions-intensive trade-exposed industries recognising that "challenges exist in implementing border adjustments for imports in a simple, transparent and verifiable manner."<sup>22</sup>

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<sup>16</sup> Oxley, A 'Oxley: Bill Could Create a Trade War', *Roll Call*, 9 November 2009, retrieved 18/11/09 at <[https://secure.rollcall.com/features/Mission-Ahead\\_Copenhagen/ma\\_energy/40313-1.html](https://secure.rollcall.com/features/Mission-Ahead_Copenhagen/ma_energy/40313-1.html)>.

<sup>17</sup> Johnson, K 'Trade Tensions: Sen. Baucus Says Climate Bill Must Protect US Industry', *The Wall Street Journal*, 10 November 2009, retrieved 19/11/09 at <<http://blogs.wsj.com/environmentalcapital/2009/11/10/trade-tensions-sen-baucus-says-climate-bill-must-protect-us-industry/>>.

<sup>18</sup> Yu, V 'New Climate Protectionism: Analysis of the trade measures in the US climate bill', *South Bulletin*, Issue 40, 10 September 2009, pp. 5-7, page 6.

<sup>19</sup> 'American Clean Energy and Security Act of 2009', as passed 26 June 2009, retrieved 18/11/09 at <[http://thomas.loc.gov/cgi-bin/query/D?c111:2:./temp/~c111jmKy2L:.](http://thomas.loc.gov/cgi-bin/query/D?c111:2:./temp/~c111jmKy2L:)>.

<sup>20</sup> 'Clean Energy Jobs and American Power Act' as Introduced 30 September 2009, retrieved 18/11/09 at <<http://kerry.senate.gov/cleanenergyjobsandamericanpower/pdf/SectionbySectionSummary.pdf>> Section 765.

<sup>21</sup> Power, S 'US Official Expects Commitment to Climate Financing', *The Wall Street Journal*, 17 November 2009, retrieved 18/11/09 at <[http://online.wsj.com/article/SB125847489735152229.html?mod=googlenews\\_wsj](http://online.wsj.com/article/SB125847489735152229.html?mod=googlenews_wsj)>.

<sup>22</sup> 'Carbon Pollution Reduction Scheme: Australia's Low Pollution Future', *Department of Climate Change*, 2008, retrieved 23/11/2009 at <<http://www.climatechange.gov.au/publications/cprs/white-paper/cprs-whitepaper.asp>>, Volume 2, Chapter 12, Page 15.

## 5.0 CARBON TARIFFS, FREE TRADE AND THE WORLD TRADE ORGANISATION

Despite enthusiasm for carbon tariffs, their legitimacy under international trade rules is questionable. The principle of free trade is that countries should produce goods and services that take advantage of their comparative advantage. Imposing a carbon price signal to devalue carbon-intensive industries, goods and services is an anathema to that principle because it devalues each country's comparative advantage.

Imposing a carbon tariff further exacerbates the tension between a carbon price signal and each country's capacity to exploit their comparative advantage by forcing the devaluation of their carbon-intensive industries, goods and services.

But carbon tariffs are not just philosophically inconsistent with free trade, they are also likely to be legally inconsistent.<sup>23</sup> In order to introduce carbon tariffs without the consequences of retaliatory measures from other countries governments would need to design them to be consistent with their existing obligations under the WTO.

Assessing their legality under the WTO is difficult because they have not been introduced in a WTO member country and hence have not been considered by a WTO dispute settlement panel.<sup>24</sup>

Consistent with the principles of free trade, the WTO Director-General, Pascal Lamy, has noted that "the WTO allows members certain flexibilities to adopt border adjustment policies to equalize costs related to carbon controls, as long as they do not distort or disrupt trade."<sup>25</sup> But as policy instruments carbon tariffs are deliberately designed to distort trade. And while Director General Lamy has argued that climate change policies are the first priority over trade obligations, the WTO Secretariat has yet to take a position on the legality of carbon tariffs instead preferring the issue be addressed through an international climate change agreement.

Although no accurate determination of WTO consistency can be made in advance as WTO panel decisions must necessarily be "highly fact-specific,"<sup>26</sup> it is considered likely that the measures proposed by the US and EU would violate the GATT, particularly Articles I and III.

Article I of the GATT includes the most favoured nation clause requiring countries to offer to WTO members the same treatment of imported goods into their country as the nation with the most favourable treatment. Article III covers national treatment provisions requiring imports to be treated equivalent to domestically produced goods beyond the border.

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<sup>23</sup> Carbon tariffs are not the only potentially inconsistent trade measure to offset the cost of a domestic carbon price signal, a discussion of the potential impacts of subsidies is included in Wilson, T 'Australia's delinked and non-compliant emissions trading scheme', Institute of Public Affairs, 2009, at

<[http://www.ipa.org.au/library/publication/1237525765\\_document\\_wilson\\_ets-wto-fta-mar09.pdf](http://www.ipa.org.au/library/publication/1237525765_document_wilson_ets-wto-fta-mar09.pdf)>

<sup>24</sup> Pauwelyn, J 'US Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law', *Nicholas Institute for Environmental Policy Solutions*, 2007, retrieved 18/11/09 at <<http://nicholas.duke.edu/institute/internationaltradelaw.pdf>>, page 41.

<sup>25</sup> Bergsten, F & L Wallach, 'Cooling the Planet without Chilling Trade', *The Washington Post*, 14 November 2009, retrieved 18/11/09 at <[http://www.washingtonpost.com/wp-dyn/content/article/2009/11/12/AR2009111209923\\_2.html?sid=ST2009111209956](http://www.washingtonpost.com/wp-dyn/content/article/2009/11/12/AR2009111209923_2.html?sid=ST2009111209956)>.

<sup>26</sup> Lincicome, S 'Germany Hates on Carbon Tariffs', *Scott Lincicome Personal Blog* 26 July 2009, retrieved 18/11/09 at <<http://lincicome.blogspot.com/2009/07/germany-hates-on-carbon-tariffs.html>>.

## 5.1 Article I | Most favoured nation

Article I requires member states to provide imports from all WTO members the same treatment "immediately and unconditionally" to "like products" originating in the country afforded the most favourable treatment.<sup>27</sup> In principle a carbon tariff would violate this principle by imposing a trade barrier on some WTO members, but not others.

### 5.1.1 Like products

A key to assessing an Article I violation is the question of whether a carbon-intensive and a non-carbon intensive product are 'like products'. WTO case law on this question is mixed. There are cases where a like product test has been interpreted from "the relevant facts of a case," where likeness has been equated "with direct competitiveness,"<sup>28</sup> or based on the "the nature and extent of a competitive relationship between and among products"<sup>29</sup> and because they compete directly in the marketplace<sup>30</sup>. The general assessment of a like product test is based on whether the two products have the same physical characteristics, end use, carry the same consumer preferences and are included in the same tariff schedule.

But in the case of a carbon intensive good an assessment of a like product is difficult because comparable physical characteristics are difficult to assess and it remains vague whether the same consumer preferences are maintained. The role of PPMs in a like product test also remains unclear under the GATT.<sup>31</sup>

It is likely that imported products will be considered as like products to those domestically produced even though the carbon emissions associated with their production vary,<sup>32</sup> and as a consequence an importer could challenge "a border adjustment that required it to purchase more allowances to reflect the higher carbon content by claiming its like product was being treated less favourably," or through the application of a tax adjustment.<sup>33</sup>

### 5.1.2 Process and production methods

Another key to assessing an Article I violation is whether products can have a carbon tariff imposed at a rate that reflects their PPMs, rather than in accordance with physical characteristics. As Pauwelyn argues, until December 2006, the WTO stated that "under existing GATT rules and jurisprudence, 'product' taxes and charges can be adjusted at the border, but 'process' taxes and charges by and large cannot."<sup>34</sup> By example, Pauwelyn demonstrates that "a tax on the energy consumed in producing a ton of steel cannot be applied to imported steel."<sup>35</sup>

<sup>27</sup> The General Agreement on Tariffs and Trade 1947 (GATT), in 'The Legal Texts – The Results of the Uruguay Round of Multilateral Trade Negotiations', *World Trade Organization*, Cambridge University Press, 2007 pp. 424-492, Article I.

<sup>28</sup> 'Japan – Customs Duties, Taxes and Labelling Practices on Imported Wines and Alcoholic Beverages', *Report of the Panel*, World Trade Organization, 1987, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/gattpanels/japanliquor.pdf>> at 3.11 and 3.12.

<sup>29</sup> 'European Communities – Measures Affecting Asbestos and Asbestos-Containing Products', *Report of the Appellate Body*, World Trade Organization, 2001, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/wtoab/ec-asbestos%28ab%29.pdf>>, para 99.

<sup>30</sup> 'United States – Import Prohibition of Certain Shrimp and Shrimp Products', *Report of the Appellate Body*, World Trade Organization, 1998 retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/wtoab/us-shrimp%28ab%29.pdf>>.

<sup>31</sup> De Cendra, J 'Can Emissions Trading Schemes be coupled with Border Tax Adjustments? An Analysis via-a-vis WTO Law', *Review of European Community and International Environmental Law*, 2006, vol. 15, no. 2, pp. 131-145, page 142.

<sup>32</sup> Bordoff, J, above n 2, page 12.

<sup>33</sup> Ibid, page 10.

<sup>34</sup> Pauwelyn, J above n 25, page 19.

<sup>35</sup> Ibid.

Therefore any carbon tariff levied based on the carbon footprint of a production process would violate this principle. However Dispute Settlement Panels have ruled in favour of assessing PPMs<sup>36</sup> and imposing border tax adjustments based on process so long as they are non-discriminatory,<sup>37</sup> however panels have not made it clear whether they could be levied on inputs unincorporated into the final product, such as carbon inputs during the production process.<sup>38</sup> And because WTO dispute settlements don't recognise jurisprudence the impact of these rulings remains unclear.

Arguments have been proposed that a carbon tariff would not violate MFN because the adjustment was not made according to origin but according to production processes<sup>39</sup>, but while a novel argument, it is unlikely to be accepted by a WTO dispute settlement panel because it would be "applied only to countries that do not have comparably effective policies."<sup>40</sup> A measure may also be inconsistent with Article I if some countries are exempt, such as the least developed countries are from the Kyoto Protocol.<sup>41</sup>

The degree to which climate change policy from the originating country is taken into account by the country imposing the tariff will be an important point. Even if PPMs are a valid basis by which to calculate a tariff, the measure may nonetheless be discriminatory if applied at a higher rate to countries without climate change abatement policies.

## 5.2 Article III | National treatment

Article III requires "national treatment" for imported products to the same degree afforded to a locally produced products. Nations must accord to imported products "treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements"<sup>42</sup> and "internal taxes and other internal charges and laws, regulations and requirements ... should not be applied to imported or domestic products so as to afford protection to domestic production."<sup>43</sup>

In the case of carbon tariffs it is difficult to assess whether the obligations to buy permits or the imposition of a tax would be an Article III violation. Previous Appellate bodies found that national treatment obligations can be violated if products are discriminated against based on their input characteristics.<sup>44</sup>

Whether Article III is violated will principally depend on the manner in which any punitive cost is added to imports. For example, the cost of an average carbon footprint for all countries would be considered discriminatory.<sup>45</sup> To avoid violating the principles of national treatment a carbon tariff

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<sup>36</sup> 'US-Shrimp', above n 30 and 'Brazil – Measures Affecting Imports of Retreaded Tyres', *Report of the Panel*, World Trade Organization, 2007, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/wtopanelsfull/brazil-tyres%28panel%29%28full%29.pdf>>.

<sup>37</sup> 'United States – Taxes on Petroleum and Certain Imported Substances', *Report of the Panel*, World Trade Organization, 1987, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/gattpanels/superfund.pdf>>.

<sup>38</sup> Cosbey, A & R Tarasofsky, 'Climate Change, Competitiveness and Trade', *Chatham House*, 2007, retrieved 18/11/09 at <[http://www.iisd.org/pdf/2007/climate\\_trade\\_competitive.pdf](http://www.iisd.org/pdf/2007/climate_trade_competitive.pdf)>.

<sup>39</sup> Bordoff, J, above n 2, page 15.

<sup>40</sup> *Ibid*, page 17.

<sup>41</sup> Shoyer, A 'WTO Background Analysis of International Provisions of US Climate Change Legislation', *Sidley Austin*, retrieved 18/11/09 at <<http://www.wita.org/ht/a/GetDocumentAction/i/32822>>, page 2.

<sup>42</sup> GATT, above n 27, Article III:4.

<sup>43</sup> *Ibid*, Article III:1.

<sup>44</sup> 'United States – Standards for Reformulated and Conventional Gasoline', *Report of the Appellate Body*, World Trade Organization, 1996, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/wtoab/us-gasoline%28ab%29.pdf>>.

<sup>45</sup> Houser, T et al, above n 1, page 35.

would have to apply exactly the same punitive cost of its domestic carbon price signal to the imported product.<sup>46</sup> The capacity to do so is virtually impossible, however case law may be available shortly should the United States challenge EU limitations on biofuel imports in the WTO.<sup>47</sup>

### 5.3 Environmental exemptions

If a carbon tariff is found to be discriminatory under Article I or III governments could argue for exemptions under Article XX which includes environmental exemptions.

#### 5.3.1 Article XX(g)

The most likely exemption to be invoked is Article XX(g) which includes an exemption for those measures "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption."<sup>48</sup> However whether the threat of anthropogenic climate change is sufficient to warrant invoking an environmental exemption remains a considerable source of contention in the literature.

A requirement is that the measure relates to conservation of the climate or atmosphere. In a range of cases<sup>49</sup> it has been determined that "relating to" should be interpreted to mean "primarily aimed at" and/or having a "substantial relationship" with conservation, rather than requiring the measure to be "necessary or essential" to the goal.

Bordoff advises that as estimates suggest tariff provisions will do little to reduce leakage, there is an insufficient relationship to warrant an exemption<sup>50</sup> and that carbon tariffs are not likely to be considered an "effective tool."<sup>51</sup> Further WTO case law demonstrates that carbon tariff legislation must not be "disproportionately wide in its scope and reach in relation to the policy objective of protection and conservation" of the atmosphere and climate<sup>52</sup>. However, Pauwelyn suggests that unless the climate change legislation displays blatant protectionism it may be capable of invoking an exemption.<sup>53</sup> There also remains a legitimate question surrounding the effectiveness of a carbon tariff implemented by a single country and its limited capacity to impact a global problem. Bordoff suggests that just because carbon tariffs would have a "limited impact on total emissions should not necessarily count against them,"<sup>54</sup> but this remains untested.

Some question whether the abatement of climate change can even be considered conservation of exhaustible natural resources<sup>55</sup>, although as Pauwelyn argues "it would be surprising if the WTO would not accept that the planet's atmosphere (that is, the layer of gases around the earth that regulates the planet's climate) is an "exhaustible natural resource."<sup>56</sup> Especially because the WTO relies on advice from other UN specialised agencies including the WMO which is likely to give advice to this affect.

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<sup>46</sup> Courchene, T & R Allan, above n 3, page 63.

<sup>47</sup> Oxley, above n 14.

<sup>48</sup> GATT, above n 27, Article XX(g).

<sup>49</sup> 'Canada – Measures Affecting Exports of Unprocessed Herring and Salmon', *Report of the Panel*, World Trade Organization 1988, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/gattpanels/canadaherring.pdf>> at 4.6, 'US-Gasoline', above n 44 and 'US-Shrimp', above n 30.

<sup>50</sup> Bordoff, J, above n 2.

<sup>51</sup> 'US-Shrimp', above n 30, para 26.

<sup>52</sup> Ibid, para 141.

<sup>53</sup> Pauwelyn, J above n 25, page 36.

<sup>54</sup> Bordoff, J, above n 2, page 18.

<sup>55</sup> James, S, above n 4.

<sup>56</sup> Pauwelyn, J above n 35.

Another requirement is that the restriction on imports be made "in conjunction with" domestic restrictions which has been described as a requirement only of "even-handedness" rather than identical treatment.<sup>57</sup>

### 5.3.2 Article XX(b)

It is also possible that an exemption may be made under Article XX(b) which allows for measures that are "necessary to protect human, animal or plant life or health"<sup>58</sup>. However Article XX(b) requires necessity, unlike Article XX(g) which only requires a relationship, to the environmental goal and is less likely to be invoked in defence of a carbon tariff because it would be significantly harder to substantiate.

### 5.3.3 Article XX Chapeau

Even if a carbon tariff is granted an exemption under Article XX(g), it would still need to satisfy the tests prescribed in the Chapeau that it is "not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade."<sup>59</sup>

The chapeau requirements are a considerable hurdle for any measure to overcome and within all Appellate Body jurisprudence, those measures that failed to qualify for the Article XX exceptions did so because of their failure to satisfy this requirement.<sup>60</sup>

WTO cases have also identified that it is desirable that countries engage with exporters in "serious, across-the-board negotiations with the objective of concluding bilateral or multilateral agreements for the protection and conservation" of the resource of concern for Article XX(g) exemptions.<sup>61</sup> This requirement may be satisfied by the system put in place by the Waxman-Markey bill for the introduction of tariffs only if an international agreement is not reached by 2018, but the Senate version of the bill, and any similar legislation in the EU or elsewhere would have to ensure it similarly took this requirement into account.

And it is certainly possible a WTO panel would consider a carbon tariff to constitute a "disguised restriction on trade" given the "larger impact on protecting certain US firms than on reducing overall GHG emissions."<sup>62</sup> Further, with the objective of carbon tariffs clearly being to influence the environmental policies of other countries it is unlikely that an exemption would be granted under the Chapeau.<sup>63</sup>

## 5.4 Achieving WTO compliance

The WTO compliance of any carbon tariff remains unknown. The literature has diverse perspectives on their legality drawing on different WTO decisions from Dispute Settlement Panels and Appellate Bodies.

But because jurisprudence doesn't carry weight in the WTO it is difficult to draw conclusions for a border measure that crosses over so many different policy priorities, potential breaches of WTO

<sup>57</sup> 'US-Gasoline', above n 44, page 21.

<sup>58</sup> GATT, above n 27, Article XX(b).

<sup>59</sup> GATT, above n 27, Article XX.

<sup>60</sup> Pauwelyn, J above n 37.

<sup>61</sup> 'US-Shrimp', above n 30, para 166.

<sup>62</sup> Bordoff, J, above n 2, page 20.

<sup>63</sup> Cosbey, A & R Tarasofsky, above n 38, page 17.

agreements and may be capable of invoking environmental exemptions depending on how narrow, or wide, they are interpreted.

The only way that the WTO compliance of a carbon tariff can reasonably be assessed is through a dispute following their establishment.

However, if a country was intending to introduce a carbon tariff it would at least need to engage in good faith negotiations with affected countries to achieve a consensual multilateral agreement as the experience through the WTO shows that Dispute Settlement Panels are reluctant to accept unilateral measures unless those genuine attempts have been made.<sup>64</sup>

Further, to be consistent with the GATT a carbon tariff would be best designed as a straight border tax, rather than a requirement to buy into permits,<sup>65</sup> which would be considerably more complex because of their fluctuating prices.<sup>66</sup> By comparison a carbon tariff as a border tax could be imposed in a much more straightforward manner and could be added at each stage "as the product moves through the various stages the taxes levied in previous stages are rebated, so only the carbon added in a particular stage is taxed at that stage. Hence, when the product reaches the final stage, the tax is on the cumulative value of carbon emissions i.e. on the sum of the amounts of carbon added at each stage."<sup>67</sup>

But even in the form of a border tax adjustment a carbon tariff would still face problems. While indirect taxes such as a value added tax may be replicated at the border under WTO law, this does not automatically permit such an adjustment for carbon emissions during production elsewhere. Article II:2(a) of the GATT provides that a border tax adjustment is permissible only when it constitutes "a charge equivalent to an internal tax ... in respect of the like domestic product or in respect of an article from which the imported product has been manufactured or produced in whole or in part." And this article leaves open the discussion about the capacity to impose a carbon tariff on the PPMs of a product.

Ultimately the main problem is that efforts to properly recognise importer's different production methods and avoid arbitrary discrimination would likely become an "administrative nightmare."<sup>68</sup>

Therefore, short of the establishment and testing of a carbon tariff in a dispute, the only way that certainty can be provided for countries seeking to impose a carbon tariff is through the development of a WTO agreement addressing the consequences of border measures to reflect domestic carbon price signals.

To date no serious effort to create such an agreement has been made, and it remains questionable whether such an agreement would be given approval. Such an agreement would be difficult to successfully negotiate because it would, first and foremost, send a bad signal as the WTO sanctioned a new form of potential protectionism. Second, WTO agreements are negotiated by consensus and it would be unlikely to secure consensus when so many WTO members don't have binding emissions reduction targets under the Kyoto Protocol, and also may not under a post-Kyoto agreement.

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<sup>64</sup> Shoyer, A above n 41, page 1.

<sup>65</sup> Pauwelyn, J above n 23.

<sup>66</sup> McKibbin, W & P Wilcoxon, above n 7, page 14-15.

<sup>67</sup> Courchene, T 'Climate Change, Competitiveness and Environmental Federalism; The Case for a Carbon Tax', Background Document for a Canada 2020 Address, June 3, 2008, retrieved 18/11/09 at <[http://www.irpp.org/miscpubs/archive/tjc\\_canada2020.pdf](http://www.irpp.org/miscpubs/archive/tjc_canada2020.pdf)>, page 9-10.

<sup>68</sup> James, S, above n 4, page 12.

## 6.0 THE COMPLICATIONS OF CARBON TARIFFS

Irrespective of their WTO compliance, carbon tariffs remain an incredibly complex instrument to impose, especially because of the preference for carbon price signals via a floating price under a CAT/ETS.

To ensure that it is WTO compliant any carbon tariff would need to be imposed equivalent to the same cost imposed on domestic producers which would require a "mind-blowingly elaborate carbon-measurement scheme, created on a global scale."<sup>69</sup> Further, Corcoran suggests that implementing these tariffs would be "so complicated it would become a dangerous threat to trade stability."<sup>70</sup>

Even supporters of carbon tariffs concede "the devil is clearly in the implementation details,"<sup>71</sup> suggesting that to impose carbon tariffs properly a panel of international carbon auditors would be required to measure carbon emissions for goods and "would have to be able to determine how much carbon emissions are embedded in the power drill that is nominally made in China, but is actually assembled from parts made in a dozen other countries. Some of those countries may or may not have carbon control programs in place,"<sup>72</sup> giving rise to ROO issues.

For example, "a car from Mexico may have an engine from Brazil and electronics from Japan. If we are going to account for this properly, we would need to know the carbon tax equivalent of each part of each good that was in effect at the time that part was produced. If we need to come up with a weighted average carbon tariff, we'll also need to know how much each part contributed to the value of the overall good. That varies over time and it varies by producer."<sup>73</sup>

These kinds of calculations would also rely on foreign manufacturers providing carbon content details for their products which they may be unwilling or unable to do.<sup>74</sup> As Elizabeth Lynch highlights, any data collected from places like China where "implementation and enforcement on the local level is a perpetual struggle" may not be reliable.<sup>75</sup>

Further these decisions would need to be made at the border for both the direct and indirect carbon content of imports, including the content assessed as part of each product's PPMs.<sup>76</sup> As the National Trade Board report highlights, "given the number of variables in terms of production methods, capital stock, and energy sources, it is nearly impossible to accurately assess embedded emissions of goods at the border on a case-by-case basis without the assistance of fairly rigorous emissions monitoring and reporting in the country of origin."<sup>77</sup>

Wisely, the complexity of introducing a carbon tariff was the reason the Australian government rejected their use as part of its CAT/ETS arguing "border adjustments will be difficult at best, or in most cases unworkable. The extensive foot printing of so many products with components across so

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<sup>69</sup> Corcoran, T, 'Blowing up the WTO', Financial Post, 1 April 2008, retrieved 18/11/09 at <<http://www.financialpost.com/scripts/story.html?id=f035aef8-db1a-427a-b438-fc2597294cd7&k=90249&p=1>>.

<sup>70</sup> Ibid.

<sup>71</sup> Courchene, T & R Allan, above n 3, page 62.

<sup>72</sup> Corcoran, T, above n 69.

<sup>73</sup> Levy, P 'Krugman's Carbon Fetish', *The Enterprise Blog*, 14 September 2009, retrieved 18/11/09 at <<http://blog.american.com/?p=4880>>.

<sup>74</sup> Bordoff, J, above n 2, page 13.

<sup>75</sup> Lynch, E 'the US Climate Change Bill: International Trade Implications & China', *China Law & Policy*, 7 September 2009, retrieved 18/11/09 at <<http://chinalawandpolicy.com/2009/09/07/the-u-s-climate-change-bill-international-trade-implications-china/>>.

<sup>76</sup> McKibbin, W & P Wilcoxon, above n 7, page 12.

<sup>77</sup> Houser, T et al, above n 1, page 34.

many international boundaries makes this exercise nigh on impossible."<sup>78</sup> Because of the complexity there is a general consensus in the literature that carbon tariffs could only reasonably be imposed to primary energy or basic products rather than final manufactured goods.<sup>79</sup>

In reality between the issues of legality and the complexity of their operation the benefits of carbon tariffs are likely to be massively outweighed by their costs caused by the administrative complexity of their application.<sup>80</sup>

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<sup>78</sup> Department of Climate Change, above n 20, page 16.

<sup>79</sup> Lucenti, K 'Carbon tariff might be legal as a VAT', Financial Post, 30 April 2008, retrieved 18/11/09 at <<http://network.nationalpost.com/np/blogs/fpcomment/archive/2008/04/30/carbon-tariff-might-be-legal-as-a-vat.aspx>>.

<sup>80</sup> McKibbin, W & P Wilcoxon, above n 7, page 20.

## 7.0 WILL CARBON TARIFFS BE EFFECTIVE?

Putting aside the lack of certainty about their compliance under WTO law and the complexity of their introduction, carbon tariffs are also a questionable policy instrument to address the claimed risks of carbon leakage and the loss of domestic industry competitiveness.

The evidence supporting the effectiveness of carbon tariffs to stop carbon leakage is questionable. While governments have argued that they may be an effective policy instrument, Bordoff found that "though estimates vary, most (studies) suggest that roughly 10 percent of the reduction in US emissions will be replaced by increases in foreign emissions,"<sup>81</sup> the US EPA found US emissions would only be reduced by half a per cent with the introduction of a carbon tariff. Lynch came to similar conclusions finding rigorous emission standards will not necessarily result in production shifting to countries without those standards.<sup>82</sup> The Lowy Institute found that the impact of carbon "tariffs would be small on most traded goods, would reduce leakage of emissions reduction very modestly, and would do little to protect import-competing industries."<sup>83</sup>

And carbon tariffs are unlikely to have the effect of prompting countries without a carbon price signal to adopt one because of the threat posed to exports. Colvin suggests that "carbon tariffs are unlikely to incentivize the kind of innovation or energy efficiency improvements by foreign companies that will lead to a reduction in global carbon emissions" because the measures are insufficiently responsive to an increase by individual firms in the carbon-efficiency of their production processes.<sup>84</sup> Bordoff supports Colvin's conclusions arguing that "while some argue that border adjustments will induce developing countries to adopt greener practices, only a very small fraction of (carbon-intensive) products made in China are exported to the United States, so a border adjustment in the US would be a small stick with which to pressure China to implement more costly low-carbon production processes."<sup>85</sup>

Irrespective of their effectiveness, the introduction of carbon tariffs could prompt retaliatory trade measures. Former US Trade Representative, Susan Schwab, highlighted a US carbon tariff would prompt retaliatory measures from trade partners that could "unfold long before any potential disputes were concluded in the WTO."<sup>86</sup> James correctly identifies that the countries, notably the US, would find themselves "diplomatically isolated precisely when it was seeking to encourage closer international cooperation to combat climate change"<sup>87</sup> if it introduced a carbon tariff. And these concerns are supported by statements from Chinese Trade Representative, Zhang Xiangchen, who stated recently that retaliation from China is inevitable should the US impose carbon tariffs.<sup>88</sup>

Carbon tariffs are clearly a blunt policy instrument in addressing potential carbon leakage, especially in comparison to the costs they will impose.

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<sup>81</sup> Bordoff, J, above n 2, page 4.

<sup>82</sup> Lynch, E above n 74, page 107.

<sup>83</sup> McKibbin, W & P Wilcoxon, above n 7, page 14-15.

<sup>84</sup> Colvin, J 'Obama v Krugman: Five Reasons the President's Right on Carbon Tariffs', *The Huffington Post*, 16 September 2009, retrieved 18/11/09 at <[http://www.huffingtonpost.com/jake-colvin/obama-vs-krugman-five-rea\\_b\\_287634.html](http://www.huffingtonpost.com/jake-colvin/obama-vs-krugman-five-rea_b_287634.html)>.

<sup>85</sup> Bordoff, J, above n 2, page 5.

<sup>86</sup> Schwab, S, Letter to Honorable Joe Barton, 4 March 2008, retrieved 18/11/09 at <[http://commontragedies.files.wordpress.com/2008/03/document\\_daily\\_01.pdf](http://commontragedies.files.wordpress.com/2008/03/document_daily_01.pdf)>.

<sup>87</sup> James, S, above n 4, page 13.

<sup>88</sup> Stanway, D & W Lan, 'Carbon tariff proposals unworkable – China WTO rep', *Reuters*, 29 October 2009, retrieved 18/11/09 at <<http://www.reuters.com/article/latestCrisis/idUSPEK8535>>.

## 8.0 THE COST OF CARBON TARIFFS

The actual financial costs of imposing carbon tariffs are unknown. A study completed by the Samsung Economic Research Institute has estimated that "if a carbon border tax was imposed on South Korea, exports would fall by 3.9 per cent annually, equal to about \$4.3bn per year."<sup>89</sup>

But some assessments of a potential carbon tariff can be assessed. Table 1 includes calculated data for the approximate cost of carbon tariffs had those products been produced in the United States. The carbon tariff rate for the five select (steel, aluminium, chemicals, paper and cement) carbon-intensive products is based on import data into the US from all countries, excluding Annex B countries under the Kyoto Protocol who are bound to reduce their emissions. Based on calculations for these five products alone the US would need to impose a carbon tariff worth more than USD\$8.6 billion to offset the cost of a domestic carbon price signal, with most of the cost being imposed on imports from Asia. With the cost of these imports in total amounting to more than USD\$80.5 billion, an USD\$8.6 billion tariff is equivalent to an average ten and a half per cent tariff imposed on carbon-intensive goods.

**Table 1 | Carbon tariff values for select carbon-intensive products by region, excluding countries bound under the Kyoto Protocol, USD\$**

Region	Steel	Aluminium	Chemicals	Paper	Cement	Regional total
<b>Africa</b>	\$137,645,268	\$35,980,980	\$117,267,453	\$3,270,453	\$3,373,118	<b>\$297,537,272</b>
<b>Asia</b>	\$2,629,261,153	\$431,615,953	\$1,340,219,110	\$381,951,943	\$257,062,488	<b>\$5,040,110,647</b>
<b>Caribbean</b>	\$79,146,458	\$2,597,631	\$453,628,979	\$1,049,693	\$1,299,259	<b>\$537,722,020</b>
<b>Central America</b>	\$1,759,663	\$10,300	\$1,793,206	\$1,437,235	\$2,206,665	<b>\$7,207,069</b>
<b>Europe</b>	\$139,402,107	\$13,454,318	\$80,115,697	\$582,981	\$54,094,041	<b>\$287,649,144</b>
<b>Middle East</b>	\$21,502,589	\$66,440,455	\$117,937,443	\$5,858,471	\$15,925,654	<b>\$227,664,612</b>
<b>North America</b>	\$609,601,422	\$141,020,748	\$144,084,602	\$77,596,905	\$57,101,719	<b>\$1,029,405,396</b>
<b>Oceania &amp; Australia</b>	\$4,583,323	\$5,711	\$6,545	\$11,908	\$33,425	<b>\$4,640,912</b>
<b>South America</b>	\$513,817,541	\$224,084,969	\$342,054,539	\$81,399,500	\$97,882,799	<b>\$1,259,239,348</b>
<b>Global total</b>						<b>\$8,691,176,420</b>

**Source:** Institute of Public Affairs calculations, methodology outlined in Annex

And the cost could be more than just raising the price of imports into countries that have carbon price signals. In a global supply chain Wolfram identifies that a carbon tariff is likely to harm the very industries it seeks to protect by imposing tariffs on imports from China which may be components and inputs into production in countries with carbon price signals. The cost of doing so further reduces the competitiveness of the goods produced in countries with these price signals into export markets without them. In particular industries like car manufacturers that participate in a global supply chain will "have to pay tariffs on any steel or auto parts that they purchase from China ... driv(ing) up the cost of making automobiles in the United States relative to making them elsewhere.

A carbon tariff may also lead to retaliatory tariffs being placed on the goods we export to other countries. Since China will be one of the largest consumers of cars in the next decade, we will be ensuring that General Motors, Ford, and Chrysler will have no choice but to make their cars in China in order to be competitive in that market."<sup>90</sup> Other reports have found that "carbon tariffs could

<sup>89</sup> Chan, Y 'South Korea pledges to set carbon emissions target for 2020', *BusinessGreen.com*, 4 August 2009, retrieved 18/11/09 at <<http://www.businessgreen.com/business-green/news/2247203/south-korea-pledges-set>>.

<sup>90</sup> Wolfram, G 'Government intervention may have unintended consequences to US industries', *Mlive.com*, 20 October 2009, retrieved 18/11/09 at <[http://blog.mlive.com/readreact/2009/10/post\\_2.html](http://blog.mlive.com/readreact/2009/10/post_2.html)>.

boost inflation and reverse the march toward offshoring as manufacturers who have relocated to countries like China move to more energy-efficient environments back home."<sup>91</sup>

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<sup>91</sup> Rubin, J & B Tal, 'The Carbon Tariff', *CIBC World Markets Inc*, Economics & Strategy Report, 27 March 2008, retrieved 18/11/09 at <[http://research.cibcwm.com/economic\\_public/download/smar08.pdf](http://research.cibcwm.com/economic_public/download/smar08.pdf)> and Thorpe, J 'Possible carbon tariffs could have an impact on growth: report', *National Post*, 27 March 2008, retrieved 18/11/09 at <<http://www.nationalpost.com/news/world/story.html?id=404233>>.

## 9.0 CONCLUSIONS

Despite rhetoric in their favour, there is clearly under-consideration by policy makers and politicians about the merit of carbon tariffs.

Carbon tariffs have been recommended as a policy instrument to assist domestic industries exposed to the cost of a carbon price signal through a CAT/ETS in competing against imports that are not, and the possible risk of carbon leakage as a consequence. But the research shows that carbon tariffs are not an effective policy instrument for offsetting any leakage that may occur.

Further, the introduction of carbon tariffs is likely to breach the obligations of WTO members in violation of the most favoured nation principle and national treatment obligations. And it remains unclear whether environmental exemptions will cover these violations.

Instead the most likely avenue for introducing WTO-compliant carbon tariffs is through the separate negotiation of a new WTO agreement. But any such agreement is highly unlikely to secure passage through the WTO's consensus-based decision making model.

The research also shows that the practical implementation of carbon tariffs is a nightmare, and can only realistically be introduced as a border tax adjustment which conflicts strongly with the current design of carbon price signals through CAT/ETS.

Even if a carbon tariff operates as a border tax adjustment the capacity to assess the carbon-component and rate of the application of a tax would require regulation and administration far in excess of the benefit of such a scheme.

And while there are no concrete estimates of the cost imposed from a carbon tariff, a conservative estimate of a possible US carbon tariff imposed on only five select carbon-intensive products would be equivalent to the imposition of a new ten and a half per cent tariff worth USD\$8.6 billion.

Instead of being a panacea to the international trade consequences of domestic carbon price signals, carbon tariffs are likely to only inflict further damage. They are not an effective policy instrument to achieve the desired policy outcome and they bring with them substantial costs that far exceed their benefit.

## 10.0 ANNEX | CARBON TARIFFS CALCULATION METHODOLOGY

Estimating the cost of a carbon tariff on five select products is based on data provided by the Peterson Institute, the US government’s TradeStats Express and the Heritage Foundation.

In its report *Levelling the carbon playing field* the Peterson Institute outlined a series of US carbon-intensive products and their principle source of carbon emissions through energy consumption, and the contribution of energy as a percentage of their total price.

Value data was then extracted from TradeStats Express for all imports for these products from all countries, excluding those with binding emissions reduction targets under the Kyoto Protocol. The TradeStats data selected for each category is provided in Table 2.

**Table 1 | TradeStats classifications for five select carbon-intensive goods, and energy shares of value**

Category	TradeStats Specific classification	Peterson Institute energy share
Steel	72 – Iron and steel	11.62%
	73 – Articles of iron and steel	11.62%
Aluminium	76 – Aluminium and articles thereof	19.83%
Chemicals	28 – Inorganic chemicals, precious and rare earth metals & radioactive compounds	16.64%
	29 – Organic chemicals	11.47%
	38 – Miscellaneous chemical products	4.28%
Paper	48 – Paper & paperboard & articles	7.27%
	49 – Printed books, newspaper etc; Manuscripts etc	7.27%
	47 – Wood pulp etc; Recovered (Waste & scrap)	7.27%
Cement	68 - Cement (Includes art of stone, plaster, cement, asebestos, mica, etc.).	16.58%

**Notes:**

The energy share for Inorganic chemicals, precious and rare earth metals & radioactive compounds is the average for all inorganic chemicals

The energy share for miscellaneous chemical products was the standard share for all chemical products

This value data was then multiplied by the relevant percentage of energy as a contribution to the final cost of the product provided by the Peterson Institution. This calculation provided an approximation of the energy cost for all of these imports into the United States.

This value data was then multiplied by the estimated increase in the cost of electricity, presumed to be the principle energy component of these products, by the Heritage Foundation.<sup>92</sup> The remaining value data is an approximate of the overall cost increase of these five select carbon intensive products that would be required to reflect the increase in cost if they were exposed to a US carbon price signal.

<sup>92</sup> Heritage Foundation calculations were based on data from IHS/Global Insight Energy Modelling.

## 11.0 REFERENCE LIST

Alberts, S 'US Climate bill would be 'disaster'', *National Post*, 14 May 2009, retrieved 18/11/09 at <<http://www.nationalpost.com/news/canada/story.html?id=1593753>>.

'American Clean Energy and Security Act of 2009', as passed 26 June 2009, retrieved 18/11/09 at <<http://thomas.loc.gov/cgi-bin/query/D?c111:2:./temp/~c111jmKy2L:>>.

Bergsten, F & L Wallach, 'Cooling the Planet without Chilling Trade', *The Washington Post*, 14 November 2009, retrieved 18/11/09 at <[http://www.washingtonpost.com/wp-dyn/content/article/2009/11/12/AR2009111209923\\_2.html?sid=ST2009111209956](http://www.washingtonpost.com/wp-dyn/content/article/2009/11/12/AR2009111209923_2.html?sid=ST2009111209956)>.

Bordoff, J 'International Trade Law and the Economics of Climate Policy: Evaluating the legality and effectiveness of proposals to address competitiveness and leakage concerns', Forthcoming in *Climate Change, Trade and Competitiveness: Is a Collision Inevitable?*, Brookings Global Economy and Development, 2008, retrieved 18/11/09 at <[http://www.brookings.edu/events/2008/~media/Files/events/2008/0609\\_climate\\_trade/2008\\_bordoff.pdf](http://www.brookings.edu/events/2008/~media/Files/events/2008/0609_climate_trade/2008_bordoff.pdf)>.

'Brazil – Measures Affecting Imports of Retreaded Tyres', *Report of the Panel*, World Trade Organization, 2007, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/wtopanelsfull/brazil-tyres%28panel%29%28full%29.pdf>>.

Broder, J 'Obama Opposes Trade Sanctions in Climate Bill', *The New York Times*, 28 June 2009, retrieved 18/11/09 at <[http://www.nytimes.com/2009/06/29/us/politics/29climate.html?\\_r=3&hp](http://www.nytimes.com/2009/06/29/us/politics/29climate.html?_r=3&hp)>.

'Canada – Measures Affecting Exports of Unprocessed Herring and Salmon', *Report of the Panel*, World Trade Organization 1988, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/gattpanels/canadaherring.pdf>>.

'Carbon Pollution Reduction Scheme: Australia's Low Pollution Future', *Department of Climate Change*, 2008, retrieved 23/11/2009 at <<http://www.climatechange.gov.au/publications/cprs/white-paper/cprs-whitepaper.aspx>>, Volume 2, Chapter 12.

Chan, Y 'South Korea pledges to set carbon emissions target for 2020', *BusinessGreen.com*, 4 August 2009, retrieved 18/11/09 at <<http://www.businessgreen.com/business-green/news/2247203/south-korea-pledges-set>>.

Charnovitz, S 'The Law of Environmental PPMs in the WTO: Debunking the Myth of Illegality', *The Yale Journal of International Law*, 2002, vol. 27 no. 59 pp. 59-110.

'Clean Energy Jobs and American Power Act' as Introduced 30 September 2009, retrieved 18/11/09 at <<http://kerry.senate.gov/cleanenergyjobsandamericanpower/pdf/SectionbySectionSummary.pdf>> Section 765.

Colvin, J 'Obama v Krugman: Five Reasons the President's Right on Carbon Tariffs', *The Huffington Post*, 16 September 2009, retrieved 18/11/09 at <[http://www.huffingtonpost.com/jake-colvin/obama-vs-krugman-five-rea\\_b\\_287634.html](http://www.huffingtonpost.com/jake-colvin/obama-vs-krugman-five-rea_b_287634.html)>.

Corcoran, T, 'Blowing up the WTO', *Financial Post*, 1 April 2008, retrieved 18/11/09 at <<http://www.financialpost.com/scripts/story.html?id=f035aef8-db1a-427a-b438-fc2597294cd7&k=90249&p=1>>.

Cosbey, A 'Border Carbon Adjustment', Background Paper, *International Institute for Sustainable Development*, 2008, retrieved 18/11/09 at <[http://www.iisd.org/pdf/2008/cph\\_trade\\_climate\\_border\\_carbon.pdf](http://www.iisd.org/pdf/2008/cph_trade_climate_border_carbon.pdf)>.

Cosbey, A & R Tarasofsky, 'Climate Change, Competitiveness and Trade', *Chatham House*, 2007, retrieved 18/11/09 at <[http://www.iisd.org/pdf/2007/climate\\_trade\\_competitive.pdf](http://www.iisd.org/pdf/2007/climate_trade_competitive.pdf)>.

Courchene, T 'Climate Change, Competitiveness and Environmental Federalism; The Case for a Carbon Tax', Background Document for a Canada 2020 Address, June 3, 2008, retrieved 18/11/09 at <[http://www.irpp.org/miscpubs/archive/tjc\\_canada2020.pdf](http://www.irpp.org/miscpubs/archive/tjc_canada2020.pdf)>.

Courchene, T & R Allan, 'Climate Change: The Case for A Carbon Tariff/Tax', *Policy Options*, March 2008, pp. 59-64, retrieved 18/11/09 at <<http://www.irpp.org/po/archive/mar08/courchene.pdf>>.

Deal, T 'WTO Rules and Procedures and their Implication for the Kyoto Protocol', A discussion paper, *United States Council for International Business*, 2008, retrieved 18/11/09 at <<http://www.uscib.org/index.asp?documentID=2323>>.

De Cendra, J 'Can Emissions Trading Schemes be coupled with Border Tax Adjustments? An Analysis via-a-vis WTO Law', *Review of European Community and International Environmental Law*, 2006, vol. 15, no. 2, pp. 131-145.

Department of Foreign Affairs & Trade (DFAT), 'Trade Topics: Quarterly Statistics', December quarter 2008 data, 2009, retrieved 18/11/09 at <[http://www.dfat.gov.au/publications/stats-pubs/downloads/trade\\_topics\\_december\\_quarter\\_2008.pdf](http://www.dfat.gov.au/publications/stats-pubs/downloads/trade_topics_december_quarter_2008.pdf)>.

'Dominican Republic – Measures Affecting the Importation and Internal Sale of Cigarettes', Report of the Appellate Body, World Trade Organization, 2005, retrieved 12/11/2009 at <[www.worldtradelaw.net/reports/wtoab/dr-cigarettes\(ab\).doc](http://www.worldtradelaw.net/reports/wtoab/dr-cigarettes(ab).doc)>, para 96.

Ellerman, D & P Joskow, 'The European Union's Emissions Trading System in Perspective', *Massachusetts Institute of Technology*, retrieved 18/11/09 at <<http://www.pewclimate.org/docUploads/EU-ETS-In-Perspective-Report.pdf>>.

EPA Analysis of the Lieberman-Warner Climate Security Act of 2008, *s2191 in 11<sup>th</sup> Congress*, 14 March 2008 retrieved 18/11/09 at <[http://www.epa.gov/climatechange/downloads/s2191\\_EPA\\_Analysis.pdf](http://www.epa.gov/climatechange/downloads/s2191_EPA_Analysis.pdf)>.

'European Communities – Measures Affecting Asbestos and Asbestos-Containing Products', *Report of the Appellate Body*, World Trade Organization, 2001, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/wtoab/ec-asbestos%28ab%29.pdf>>.

Houser, T et al, 'Leveling the Carbon Playing Field: International Competition and US Climate Policy Design', *Peterson Institute for International Economics, World Resources Institute*, 2008, retrieved 18/11/09 at <[http://pdf.wri.org/leveling\\_the\\_carbon\\_playing\\_field.pdf](http://pdf.wri.org/leveling_the_carbon_playing_field.pdf)>.

'International Energy Outlook 2009', Official Energy Statistics from the US Government, *Energy Information Administration*, Figure 22, retrieved 18/11/09 at <[http://www.eia.doe.gov/oiaf/ieo/graphic\\_data\\_world.html](http://www.eia.doe.gov/oiaf/ieo/graphic_data_world.html)>.

IPCC Fourth Assessment Report, 'Mitigation of Climate Change', *Intergovernmental Panel on Climate Change*, retrieved 18/11/09 at <<http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter11.pdf>>.

James, S 'A Harsh Climate for Trade: How Climate Change Proposals Threaten Global Commerce', *Trade Policy Analysis*, CATO Institute, September 2009, no. 41, retrieved 18/11/09 at <<http://www.freetrade.org/files/pubs/pas/tpa-041.pdf>>.

'Japan – Customs Duties, Taxes and Labelling Practices on Imported Wines and Alcoholic Beverages', *Report of the Panel*, World Trade Organization, 1987, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/gattpanels/japanliquor.pdf>>.

Johnson, K 'Trade Tensions: Sen. Baucus Says Climate Bill Must Protect US Industry', *The Wall Street Journal*, 10 November 2009, retrieved 19/11/09 at <<http://blogs.wsj.com/environmentalcapital/2009/11/10/trade-tensions-sen-baucus-says-climate-bill-must-protect-us-industry/>>.

Knappenberger, C 'Climate Impacts of Waxman-Markey (the IPCC-based arithmetic of no gain)', *Master Resource*, 6 May 2009, retrieved 18/11/09 at <<http://masterresource.org/?p=2355>>.

Kreutzer, D. W., Campbell K. A., Beach, W., Lieberman, B & Loris, N. D., 'The economic consequences of Waxman-Markey: An analysis of the American Clean Energy and Security Act of 2009', *Heritage Center for Data Analysis*, Heritage Foundation, 2009, Washington DC, United States of America, retrieved 27/11/09 at <[http://www.heritage.org/Research/EnergyandEnvironment/upload/CDA\\_09-041.pdf](http://www.heritage.org/Research/EnergyandEnvironment/upload/CDA_09-041.pdf)>.

'Labor rebuffs green tariff plan', *The Australian*, 30 July 2009, retrieved 18/11/09 at <<http://www.theaustralian.com.au/news/breaking-news/labor-rebuffs-green-tariff-plan/story-fn3dxity-1225756520421>>.

Levi, M 'The dangers of a carbon trade war', *The Boston Globe*, 12 August 2009, retrieved 18/11/09 at <[http://www.boston.com/bostonglobe/editorial\\_opinion/oped/articles/2009/08/12/the\\_dangers\\_of\\_a\\_carbon\\_trade\\_war/](http://www.boston.com/bostonglobe/editorial_opinion/oped/articles/2009/08/12/the_dangers_of_a_carbon_trade_war/)>.

Levy, P 'Krugman's Carbon Fetish', *The Enterprise Blog*, 14 September 2009, retrieved 18/11/09 at <<http://blog.american.com/?p=4880>>.

Lincicome, S 'Germany Hates on Carbon Tariffs', *Scott Lincicome Personal Blog* 26 July 2009, retrieved 18/11/09 at <<http://lincicome.blogspot.com/2009/07/germany-hates-on-carbon-tariffs.html>>.

Loris, N 'An Inconvenient Tariff', *Beijing Review*, 30 July 2009, retrieved 18/11/09 at <[http://www.bjreview.com.cn/business/txt/2009-07/24/content\\_209036.htm](http://www.bjreview.com.cn/business/txt/2009-07/24/content_209036.htm)>.

Lucenti, K 'Carbon tariff might be legal as a VAT', *Financial Post*, 30 April 2008, retrieved 18/11/09 at <<http://network.nationalpost.com/np/blogs/fpcomment/archive/2008/04/30/carbon-tariff-might-be-legal-as-a-vat.aspx>>.

Lynch, E 'the US Climate Change Bill: International Trade Implications & China', *China Law & Policy*, 7 September 2009, retrieved 18/11/09 at <<http://chinalawandpolicy.com/2009/09/07/the-u-s-climate-change-bill-international-trade-implications-china/>>.

McKibbin, W & P Wilcoxon, 'The Economic and Environmental Effects of Border Tax Adjustments for Climate Policy', *International Economics*, Lowy Institute for International Policy, February 2009, no. 109 retrieved 18/11/09 at <<http://www.lowyinstitute.org/Publication.asp?pid=978>>.

Michaels, P & S James, 'Cap-and-Trade War', *National Review (Online)*, The CATO Institute, 17 November 2009 retrieved 18/11/09 at <[http://www.cato.org/pub\\_display.php?pub\\_id=10313](http://www.cato.org/pub_display.php?pub_id=10313)>.

Morgenstern, R et al., 'Competitiveness Impacts of Carbon Dioxide Pricing Policies on Manufacturing', *Resources for the Future*, Issue Brief 7, retrieved 18/11/09 at <[http://www.rff.org/rff/Publications/upload/31811\\_1.pdf](http://www.rff.org/rff/Publications/upload/31811_1.pdf)>.

National Board of Trade, 'Climate and Trade Policy – Harmony or Conflict?', September 2004, retrieved 18/11/09 at <<http://www.maanystavat.fi/online/Climate%20and%20trade%20rules%20harmony%20or%20conflict.pdf>>.

Oxley, A 'Oxley: Bill Could Create a Trade War', *Roll Call*, 9 November 2009, retrieved 18/11/09 at <[https://secure.rollcall.com/features/Mission-Ahead\\_Copenhagen/ma\\_energy/40313-1.html](https://secure.rollcall.com/features/Mission-Ahead_Copenhagen/ma_energy/40313-1.html)>.

Parker, L & J Blodgett, 'Carbon leakage and trade', Report for Congress, *Congressional Research Service*, 2008 retrieved 18/11/09 at <<http://www.fas.org/sgp/crs/misc/R40100.pdf>>.

Pauwelyn, J 'US Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law', *Nicholas Institute for Environmental Policy Solutions*, 2007, retrieved 18/11/09 at <<http://nicholas.duke.edu/institute/internationaltradelaw.pdf>>.

Power, S 'US Official Expects Commitment to Climate Financing', *The Wall Street Journal*, 17 November 2009, retrieved 18/11/09 at <[http://online.wsj.com/article/SB125847489735152229.html?mod=googlenews\\_wsj](http://online.wsj.com/article/SB125847489735152229.html?mod=googlenews_wsj)>.

Rubin, J & B Tal, 'The Carbon Tariff', *CIBC World Markets Inc*, Economics & Strategy Report, 27 March 2008, retrieved 18/11/09 at <[http://research.cibcwm.com/economic\\_public/download/smar08.pdf](http://research.cibcwm.com/economic_public/download/smar08.pdf)>

Schwab, S, Letter to Honorable Joe Barton, 4 March 2008, retrieved 18/11/09 at <[http://commontragedies.files.wordpress.com/2008/03/document\\_daily\\_01.pdf](http://commontragedies.files.wordpress.com/2008/03/document_daily_01.pdf)>.

Shanley, M and I Wissenbach , 'Germany calls carbon tariffs "eco-imperialism"', *Reuters*, 24 July 2009, retrieved 18/11/09 at <[http://www.reuters.com/article/internal\\_ReutersNewsRoom\\_BehindTheScenes\\_MOLT/idUSTRE56N1RJ20090724](http://www.reuters.com/article/internal_ReutersNewsRoom_BehindTheScenes_MOLT/idUSTRE56N1RJ20090724)>.

Shoyer, A 'WTO Background Analysis of International Provisions of US Climate Change Legislation', *Sidley Austin*, retrieved 18/11/09 at <<http://www.wita.org/ht/a/GetDocumentAction/i/32822>>.

Stanway, D & W Lan, 'Carbon tariff proposals unworkable – China WTO rep', *Reuters*, 29 October 2009, retrieved 18/11/09 at <<http://www.reuters.com/article/latestCrisis/idUSPEK8535>>.

The General Agreement on Tariffs and Trade 1947 (GATT), in 'The Legal Texts – The Results of the Uruguay Round of Multilateral Trade Negotiations', *World Trade Organization*, Cambridge University Press, 2007 pp. 424-492.

Thorpe, J 'Possible carbon tariffs could have an impact on growth: report', *National Post*, 27 March 2008, retrieved 18/11/09 at <<http://www.nationalpost.com/news/world/story.html?id=404233>>.

TradeStats Express, *US Department of Commerce*, retrieved 27/11/09 at <<http://tse.export.gov/ITAHome.aspx?UniqueURL=sl4bmaj0mlqfxg45ppbfbpyv-2009-11-26-23-54-33>>.

'United States – Import Prohibition of Certain Shrimp and Shrimp Products', *Report of the Appellate Body*, World Trade Organization, 1998 retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/wtoab/us-shrimp%28ab%29.pdf>>.

'United States – Restrictions on Imports of Tuna', *Report of the Panel*, World Trade Organization, 1991, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/gattpanels/tunadolphinl.pdf>>.

'United States – Standards for Reformulated and Conventional Gasoline', *Report of the Appellate Body*, World Trade Organization, 1996, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/wtoab/us-gasoline%28ab%29.pdf>>.

'United States – Taxes on Automobiles', *Report of the Panel*, World Trade Organisation, 1994, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/gattpanels/us-autotaxes.pdf>>.

'United States – Taxes on Petroleum and Certain Imported Substances', *Report of the Panel*, World Trade Organization, 1987, retrieved 18/11/09 at <<http://www.worldtradelaw.net/reports/gattpanels/superfund.pdf>>.

Quick, R 'Border Tax Adjustment to Combat Carbon Leakage: A Myth', *Global Trade and Customs Journal*, Volume 4, Issue 11/12, 2009, pp. 353-357.

Wolfram, G 'Government intervention may have unintended consequences to US industries', *Mlive.com*, 20 October 2009, retrieved 18/11/09 at <[http://blog.mlive.com/readreact/2009/10/post\\_2.html](http://blog.mlive.com/readreact/2009/10/post_2.html)>.

WTO News Items, 'Lamy: Global problems do not respond to unilateral fixes; Copenhagen must be our focus', *World Trade Organization*, 26 June 2009, retrieved 18/11/09 at <[http://www.wto.org/english/news\\_e/news09\\_e/dgpl\\_29jun09\\_e.htm](http://www.wto.org/english/news_e/news09_e/dgpl_29jun09_e.htm)>.

Wynn, G 'EU Considers Carbon Tariff as Part of Climate Push', *Reuters*, 7 January 2008, retrieved 18/11/09 at <<http://www.planetark.com/dailynewsstory.cfm/newsid/46275/story.htm>>.

Yglesias, M 'Making China Part of the Solution', *Yglesias (Blog)*, 16 May 2009, retrieved 18/11/09 at <<http://yglesias.thinkprogress.org/archives/2009/05/making-china-part-of-the-solution.php>>.

Yu, V 'New Climate Protectionism: Analysis of the trade measures in the US climate bill', *South Bulletin*, Issue 40, 10 September 2009, pp. 5-7.

## 12.0 ABOUT THE INSTITUTE OF PUBLIC AFFAIRS ([www.ipa.org.au](http://www.ipa.org.au))

Founded in 1943, the [Institute of Public Affairs](#) is the world's oldest free market think tank. The IPA is a not-for-profit research institute based in Melbourne, Australia with staff and associates based around Australia. All work completed by the IPA is published in the public domain for the consumption of governments, politicians, domestic and international policy makers and the public-at-large.

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[Sustainable Development](#) is a blog to promote environmentally, socially and economically sustainable evidence-based public policy for the developing world. SD supports a market-based approach to achieve sustainable development that improves the living standards of the world's poor, environmental standards and social cohesion.

SD is a program of the Institute of Public Affairs in Melbourne, Australia. The principle author of SD is Director of the IPA's Intellectual Property and Free Trade Unit, Tim Wilson.

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