

The WTO Consistency of Carbon Footprint Taxes

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Abstract*

Absent meaningful multilateral action on greenhouse gas emissions, countries wishing to combat climate change must decide whether to take or continue unilateral action. A significant obstacle facing many of these governments is how to maintain competitiveness and minimize leakage without violating trade rules. A common proposal is to pair domestic policies such as emission trading or emission taxes---which focus on the *producer*---with carbon tariffs---which focus on *goods* imported from non-regulating regions. However a number of legal scholars have argued that this pairing will violate the trade rules because the way products are taxed will vary depending on where they are produced. In this paper we address whether a different kind of climate policy---a consumption tax levied on the carbon footprint of goods consumed domestically---would be consistent with World Trade Organization rules. Because a carbon footprint tax (CFT) would be levied at the point of consumption, goods would be treated equally regardless of whether they are imported or produced domestically. We analyze the legal precedents for a footprint tax and identify grounds upon which a CFT might possibly be challenged. Although the CFT would be a single-rate tax, the effective tax per-unit will vary across goods according to their carbon footprint. As a results, goods that are identical but for differences in their embodied emissions will face different tax burdens; if goods with different embodied carbon are deemed “like” goods, any variation in the per-unit tax could be interpreted as violating National Treatment. In such an event, we propose a dual policy which consists of a uniform product tax on all goods within a particular product class, paired with a product-specific consumption-subsidy based on each good’s actual footprint.

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I. Introduction

The lack of global cooperation over climate change has led some countries and jurisdictions to pursue climate policy unilaterally,¹ and many not at all. A result of the divergent approaches to carbon regulation is that the implicit price of carbon dioxide emissions varies across jurisdictions. This has led to concerns that firms operating in regulated economies will lose market share—or *competitiveness*—to rivals from regions without active carbon policy, suffering production losses as a result. Moreover, there are fears of *leakage*: emission reductions achieved in regulating countries may be offset in part by increased production—and emissions—in unregulated economies.²

Hoping to mitigate output loss, several countries have attempted to protect their energy intensive and trade exposed (EITE) sectors, either through free allowance of emission permits to firms in these sectors or via discounted carbon taxes.³ Lawmakers and academics alike have alternately considered levying carbon charges---commonly referred to as *border carbon adjustments* (BCAs)---on goods imported from non-regulating countries so as to keep domestic firms on an even footing with imports.⁴ Numerical simulations suggest BCAs could have a significant impact on leakage rates: many studies find that BCAs reduce leakage rates by as much as two-

¹ Emission trading systems have been implemented without significant coordination in the European Union, New Zealand, and Australia; the Australian program is currently facing repeal. Carbon taxes are in place in Sweden, Ireland, Finland, Boulder, Colorado, and British Columbia, Canada. The taxes implemented in these jurisdictions vary substantially. Some, such as that in Boulder, are implemented as an additional tax on electricity consumption, see Katie Kelley, *City Approves 'Carbon Tax' in Effort to Reduce Gas Emissions*, N.Y. Times, Nov 18, 2006, available at <http://www.nytimes.com/2006/11/18/us/18carbon.html?ex=1321506000&en=0394a8cb65f3bd09&ei=5088>). Others, such as those in place in British Columbia and Finland, are levied on fossil fuels according to the fuel's carbon content, see Jenny Sumner, Lori Bird, & Hillary Dobos, *Carbon Taxes: a Review of Experience and Policy Design Considerations*, 11 *Clim. Policy* 922, 928 (2011).

² Based on recent Computational General Equilibrium (CGE) modeling efforts, many analysts agree that the leakage rates associated with unilateral climate policy would be between 5% and 25%, see Frederic Branger & Philippe Quirion, *Would Border Carbon Adjustments Prevent Carbon Leakage and Heavy Industry Competitiveness Losses? Insights from a Meta-Analysis of Recent Economic Studies*, 99 *Ecol. Econ.* 29, 29 (2014). Predictions vary according to modeling assumptions, including substitution elasticities, the number of countries undertaking carbon reductions, and the nature of market competition. Relaxing the assumption that firms are perfectly competitive can lead CGE models to find leakage rates as high as 130%, see Mustafa Babiker, *Climate change policy, market structure, and carbon leakage*, 65 *J. Int'l Econ.* 421, 441 (2005).

³ New Zealand's emission trading system allocates free emissions permits to firms operating in EITE sectors, see New Zealand Ministry for the Environment, *Industry in the Emissions Trading Scheme*. Climate Change Information, available at <http://www.climatechange.govt.nz/emissions-trading-scheme/participating/industry/> (last visited Dec. 15, 2013). The carbon tax in Sweden allows special treatment for EITE sectors: firms in these sectors pay half the carbon tax rate and are exempt from energy taxes, see Bengt Johnson, *Economic Instruments in Practice 1: Carbon Tax in Sweden* (2000), available at <http://www.oecd.org/sti/inno/2108273.pdf>.

⁴ The now expired American Clean Energy and Security Act of 2009 (often referred to as the Waxman-Markey bill) included a provision that required importers to purchase "international reserve allowances" for goods from countries with inadequate climate policies, U.S. Senate, 111th Congress, 1st Session, H.R. 2454, *American Clean Energy and Security Act of 2009*, Washington, Government Printing Office, 2009.

thirds⁵. Yet the legal status of BCAs is far from clear. Many legal scholars argue that pairing BCAs with the dominant forms of carbon regulation would violate trade agreements such as the General Agreement on Tariffs and Trade (GATT). The basic argument is as follows. Emission taxes and allowance trading programs are regulations governing *firms*. BCAs, on the other hand, would be charges levied on imported *products*. As domestically produced goods would not themselves be subject to these product charges, the BCAs would violate the World Trade Organization's (WTO) National Treatment principle.

Implementing carbon-based product taxes for all goods—regardless of where they are produced—and eschewing emissions taxes and allowance trading altogether would remedy this mismatch. Carbon-based product taxes have been considered by a number of scholars including Courchene and Allan⁶, Hufbauer, Charnovitz and Kim⁷, Stiglitz⁸, McLure⁹, and Hillman¹⁰. In this paper we focus on a carbon footprint tax (CFT): a consumption tax where the tax basis is a product's carbon footprint. We provide an in-depth analysis of related WTO case-law to evaluate whether a CFT would be consistent with WTO rules. In section 2 we briefly describe how a CFT would work; readers interested in further detail are directed to a companion paper¹¹, which fleshes out the logistics of implementing a CFT. In section 3 we examine the GATT/WTO precedents for a carbon footprint tax. As we discuss in that section, a CFT stands a better chance of surviving a

⁵ Bohringer, Carbone, and Rutherford show BCAs on imports and exports reduces leakage rates from 15.6% to 14.8%, *see* Christoph Bohringer, Jared Carbone, & Thomas Rutherford, *Embodied carbon tariffs* (2013) at 20.. Fischer and Fox find BCAs reduce output losses for manufacturing sectors by between 30% and 100%, *see* Carolyn Fischer & Alan Fox, *Comparing policies to combat emissions leakage: Border carbon adjustments vs rebates*, 64 J. Environ. Econ. Manage. 199, 22 (2012).

⁶ Courchene and Allan describe what they call a “Carbon Added Tax.” At each stage in the production process, this tax would price the entire stream of carbon emitted in the current production stage and all earlier stages. Producers would then receive reimbursements for the carbon tax paid on inputs. In effect, their tax would price the carbon footprint at each stage in production, and avoid double taxation with the reimbursements. Our CFT builds on this concept, but expands on its design, and introduces several variants, to ensure a carbon footprint tax would be both technically feasible and WTO-consistent. *See generally* Thomas Courchene & John Allen, *Climate Change: the Case for a Carbon Tariff/Tax*, *March Policy Options* 59 (2008).

⁷ Hufbauer, Charnovitz and Kim's take on carbon-based product taxes is to envision a “Carbon Passport” system whereby all products sold domestically, regardless of place of origin, would require a certificate outlining the carbon footprint of that good. They argue a domestic tax – and BCA's – levied on each product according to the amount of carbon emissions listed on the certificate would be consistent with GATT Article II:2(a). *See* Gary Hufbauer, Steve Charnovitz, & Jisun Kim, *Global warming and the world trading system* (2009) at 68.

⁸ Stiglitz proposed a Carbon Added Tax similar to that of Courchene and Allan, *see generally* Joseph Stiglitz, *Sharing the Burden of Saving the Planet: Global Social Justice for Sustainable Development* (2009), *available at* <http://academiccommons.columbia.edu/catalog/ac%3A126988>.

⁹ *See* Charles McLure, *The Carbon-Added Tax: a Cat that Won't Hunt*, *October Policy Options* 61 (2010) and Charles McLure, *The Carbon-Added Tax: An Idea Whose Time Should Never Come*, 4 *Carbon & Clim. L. Rev.* 250 (2010) for critiques of the Carbon Added Tax idea, noting some major challenges with the feasibility of carbon-based product taxes. *See also* Charles McLure, *Could VAT Techniques Be Used to Implement Border Carbon Adjustments?*, 66 *Bulletin for Int'l Tax'n* 436 (2012) for a discussion on whether methods used to implement Value Added Taxes could be used for carbon product taxes.

¹⁰ Hillman notes that a product-based carbon tax is “the simplest and most likely WTO-consistent path” to implement BCAs, Jennifer Hillman, *Changing climate for carbon taxes: Who's afraid of the WTO?* (2013) at 6, *available at* <http://www.gmfus.org/archives/changing-climate-for-carbon-taxes-whos-afraid-of-the-wto/>.

¹¹ *See generally* Carol McAusland & Nouri Najjar, *Carbon Footprint Taxes*, ___ *Environ. Resour. Econ.* ___ (forthcoming 2014). DOI 10.1007/s10640-013-9749-5

challenge via the WTO than does any other proposed method of implementing destination-based carbon policy currently on the table. Nevertheless, it is conceivable that a WTO Dispute Settlement Panel (DSP) or the Appellate Body (AB) would find against a CFT, and so in section 4 we discuss potential “workarounds” that might satisfy the WTO. In section 5 we present arguments supporting our claim that other methods of implementing destination based carbon policy---namely, pairing BCAs with either emission taxes or tradable allowance programs---are likely to run afoul of the WTO.

II. Policy Design

The intention of a Carbon Footprint Tax (CFT) would be to price all carbon dioxide equivalent (CO₂e) emissions released as a result of the goods and services *consumed* within a given jurisdiction. The CFT is in contrast to an emissions tax¹², which prices the CO₂e emissions resulting from *production* within a jurisdiction.

The CFT would be implemented as a tax on a product, rather than on a producer. To levy a CFT the tax authority would need to know a product’s carbon footprint (CF). Following the Life Cycle Analysis literature, a product’s CF would include CO₂ and carbon dioxide equivalent (CO₂e) released at each stage in the good’s production process, as well as the CO₂e released during the consumption of the good (we call this a good’s latent emissions¹³). A product’s CF, then, would include the emissions released directly by the consumer during use of the product and by the manufacturer during production, as well as all upstream releases, including those from electricity generation, resource extraction, and intermediate good production,.

Adopting the language used in the Value Added Tax literature, we envision a CFT implemented in the *credit-method*. This means each product would be taxed according to its full CF, while producers would receive credit for any CFT paid on inputs. As a result, producers would remit to the tax authority the difference between the good’s full CFT and the CFT paid on inputs, thereby avoiding double taxation.

A CFT would be *destination-based*: a good would be taxed based on where it is consumed, rather than where it was produced. Under destination-based taxation, goods consumed domestically would be taxed according to their carbon footprints, while exports would be rebated any CFT paid on inputs and the CFs of exported goods would be taxed at rate zero. The target of the tax would be domestic consumption; however, the tax would generally be levied at the point

¹² Variants on the standard emissions tax are in place in British Columbia, Canada, Montgomery County, Maryland, Germany, and Norway. Lindsay Brewer, Marissa Greco, Alexi Pappas, & Zachary Schwartz, A New Hampshire State Carbon Tax: An Analysis of the Economic and Social Implications 12 (2011); Tim Flannery, Roger Beale, & Gerry Hueston, The critical decade: International action on climate change 38 (2012).

¹³ Latent emissions are most important for fossil fuel products, such as gasoline, that release significant CO₂e emissions when used.

of purchase. Because some of the imported goods consumed locally would have a foreign point of purchase, there would have to be an adjustment at the border; similarly, exported goods would also need to receive adjustment at the border, as the point of final purchase might similarly occur abroad. As per Low, Marceau and Reinaud¹⁴, the CFT would thus be an example of an internal tax with applications at the border.

Firms could self-report CFs subject to audit. The downside to this approach would be that auditing claims made by importers may be costly and difficult; collecting penalties from foreign firms who understate their CFs could also be challenging. Given the difficulties associated with self-reporting, we anticipate that carbon footprints would need to be certified by third-parties using internationally agreed upon methodologies, such as the International Organization for Standardization (ISO)'s 14067 guidelines for carbon footprinting.

Under a *pure* CFT, a carbon footprint (CF) would be calculated for every unique product sold in the levying country. If CFs must be certified, a pure CFT could be prohibitively costly. In McAusland and Najjar¹⁵, section 4.1, we estimate that certification costs in the Canadian economy alone would exceed 6 billion dollars.

In McAusland and Najjar¹⁶ we also discuss an alternative policy that would have significantly lower compliance costs than a pure CFT; we refer to this modified tax as a *hybrid CFT*. Under a hybrid CFT, the government could determine *default* CFs for all goods sold within a product-class, regardless of where the goods are produced. Producers could then choose to use the default CF for their good, rather than pay to calculate their product's actual CF. The product-class distinctions could follow an industry classification system such as the North American Industry Classification System (NAICS). For example, a default CF could be set for all "Women's and Girl's dress manufacturing" (NAICS-code 315233). All imported and domestically produced dresses would receive the same default CF.

Using the default would be optional. Firms would still be allowed to have their actual CFs verified by a third party, and have their goods taxed based on those certified CFs. Presumably, firms would only pursue individual certification if their CFs were markedly below the relevant defaults.

Governmental authorities would calculate the default CFs.¹⁷ If, for example, authorities used the product-class distinctions from the US Census Bureau's augmented NAICS tables (which

¹⁴ See generally Patrick Low, Gabrielle Marceau, & Julia Reinaud, *The Interface Between the Trade and Climate Change Regimes: Scoping the Issues* (2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1742803.

¹⁵ Carol McAusland & Nouri Najjar, *supra* note 11, at 21.

¹⁶ *Id.* at 11.

¹⁷ In the event that multiple countries pursued hybrid CFTs simultaneously, the default CFs could be set by an international panel.

disaggregate industries to the 10-digit level), then 3,299 default CFs would be required.¹⁸ Allowing firms to utilize defaults would substantially reduce firms' compliance costs¹⁹. The use of defaults, tied to a CF certification scheme, might also assuage some concerns of WTO legality of the CFT. We discuss this in detail in section 4.

III. Legal Context

A carbon footprint tax would be levied on products consumed domestically. As such it would be an internal measure governed by GATT Article III (National Treatment)²⁰. As the CFT is a tax, the relevant paragraph would be GATT III:2, which stipulates

[Imports]... shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products. Moreover, no contracting party shall otherwise apply internal taxes or other internal charges to imported or domestic products in a manner contrary to the principles set forth in paragraph 1.²¹

GATT III:1 stipulates that internal measures “should not be applied to imported or domestic products so as to afford protection to domestic production”²².

Often, the act that triggers taxation---consumption---is not observed directly. Hence, the tax would be levied at the point of purchase. When this transaction occurs abroad, the levying country would impose the tax upon entry, an action known as a Border Tax Adjustment (BTA). The 1970 Working Party on Border Tax Adjustments reported that there was a consensus amongst countries that *indirect* taxes, such as value added taxes, are eligible for BTAs as per

¹⁸ The default CFs themselves could be calculated using multi-regional input-output (MRIO) data; MRIO databases connect national input-output (IO) tables with data on inter- and intra-industry flows of goods and services within and across nations.

¹⁹ See generally Carol McAusland & Nouri Najjar, *supra* note 11, for a discussion on the disadvantages of implementing a CFT using the hybrid method. Most notably, all goods within a product-class that use the default CF would receive the same tax, regardless of the actual CF of the good. Consumers, then, would have no incentive to purchase the lower CF varieties unless the producers opt to certify their good's CF. The use of defaults may also unravel the incentives for carbon reductions amongst producers. A firm utilizing a default CF would have no incentive to reduce its own CO₂e emissions or purchase low-CF inputs (as it would receive rebates for all CFT paid on inputs). If downstream producers do not purchase low-CF inputs, then upstream producers will have less incentive to reduce their own products' CFs.

²⁰ WTO Appellate Body Report on China – Measures Affecting Imports of Automobile Parts, WT/DS339/AB/R (Jan. 12, 2009) [hereinafter China Imports]. The Appellate Body clarified that GATT II:2 is relevant if the charge is triggered by the act of importation. If instead the charge is triggered by an internal act, such as the sale or the consumption of the good, then it is subject to Article III.

²¹ GATT 1994:General Agreement on Tariffs and Trade 1994, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, THE LEGAL TEXTS: THE RESULTS OF THE URUGUAY ROUND OF MULTILATERAL TRADE NEGOTIATIONS 17 (1999), 1867 U.N.T.S. 187, 33 I.L.M. 1153 (1994) [hereinafter GATT], art. 3.2.

²² Id. art. 3.1.

GATT Article III²³. In *China – Measures Affecting Imports of Automobile Parts*²⁴, the Appellate Body clarified that taxes imposed at the border are not to be construed as border charges if the act that triggers the charge---e.g. consumption---is an internal act.

1. Obstacles to WTO Consistency

Although it is uncontroversial to state that a product tax is eligible for BTA, there is some question as to whether a CFT would be fully consistent with all of the principles upheld by the GATT, most notably National Treatment.

At first glance a CFT might seem to fully support the principle of National Treatment. To begin with, the tax formula would be origin neutral and identical for all products regardless of where they are produced. However there have been a number of cases in which tax codes were deemed to have violated National Treatment even though the codes were written without reference to country of origin. In the Japan-Alcohol case²⁵, Japan taxed shochu---a spirit with predominately domestic production---at a lower rate than vodka (predominately imported). In the Chile-Alcoholic Beverages case²⁶, Chile taxed beverages with an alcoholic content of more than 39 percent at a rate of 47% but taxed alcoholic beverages with content of 35 percent or less at only 27%, giving an effective tax break to domestically produced low-alcohol pisco. In the US-Automobile Tax case²⁷, the US imposed surcharges on vehicles priced at more than \$30,000, which impacted predominately imports from European automakers. In all of these cases the policies were origin neutral on their face, as none of the policies explicitly stipulated differential treatment for imported goods. Nor was there clear evidence that the levying governments had designed their tax structures with the *intent* of discriminating against imports. But the Appellate Body found all of these tax systems in violation of National Treatment. Discussing the Japan-Alcohol²⁸ case, the AB stated that *intent* to convey protection is not the criterion by which a policy should be judged:

It is irrelevant that protectionism was not an intended objective if the particular tax measure in question is nevertheless, to echo Article III:1,

²³ See Working Party on Border Tax Adjustments, Report of the Working Party, L/3464 (adopted Dec. 2, 1970) at 2.

²⁴ See *China Imports*, *supra* note 20.

²⁵ WTO Report of the Appellate Body on Japan – Taxes on Alcoholic Beverages, WT/DS8/AB/R, WT/DS10/AB/R, & WT/DS11/AB/R (adopted Oct. 4 1996) [hereinafter Japan-Alcoholic Beverages].

²⁶ WTO Report of the Appellate Body on Chile—Taxes on Alcoholic Beverages, WT/DS87/AB/R, & WT/DS110/AB/R (adopted Dec. 13 1999) [hereinafter Chile-Alcoholic Beverages].

²⁷ GATT Report of the Panel on United States – Taxes on Automobiles, DS31/R Oct. 11, 1994) (unadopted) [hereinafter US-Automobile Taxes].

²⁸ In the subsequent Chile-Alcoholic Beverages case, the Appellate Body softened its position, reclaiming the attitude that underlying purposes are relevant: “a measure's purposes, objectively manifested in the design, architecture and structure of the measure, *are* intensely pertinent to the task of evaluating whether or not that measure is applied so as to afford protection to domestic production.” *Supra* note 26, Parag. 71 (emphasis in original).

"*applied to imported or domestic products so as to afford protection to domestic production*"²⁹

How would a CFT be judged in these terms? As Hillman notes, “most WTO decisions that have found taxation systems to run afoul of the WTO’s nondiscrimination rules have been based on different tax *rates* applied to products that have been claimed to be different (e.g., Japanese sochu versus vodka) based on a particular definition of the product” (emphasis added)³⁰. A CFT would utilize a single tax rate---e.g. \$30/tonne of embodied carbon---, and thus would not be open to this particular criticism. However, there would invariably be industries in which imports were disadvantaged on average, such that the CFT could be judged as having a protective effect. However, the CFT would be applied economy-wide, thus it is also probable that for any CFT levying country there would be product-classes in which domestically produced goods are put at a disadvantage vis-à-vis imports. Even if, on average, one nation’s goods are taxed more heavily in the CFT-levying country than another’s, we argue it is unlikely that the CFT program would be judged as being applied “so as to afford protection.”

Even if a CFT was not viewed as being “applied...so as to afford protection”, it might nonetheless be challenged on the grounds that it is inconsistent with GATT III:2 first sentence in that it differentially taxes what may be considered “like” goods.

Tax rules in numerous countries have been challenged based on dissimilar treatment of like goods, and the related jurisprudence is worth exploring. In the US-Taxes on Automobiles³¹ case a tax threshold was challenged on the grounds that goods just above and below the \$30,000 threshold were taxed differentially even though they are “like” products. In its un-adopted report on this case, the Panel argued that “two individual products could never be exactly the same in all respects” and upheld the tax threshold on the grounds that it did not appear protectionist *on the margin*.

In contrast, in an earlier report regarding the US-Malt Beverages dispute the Panel found the State of Minnesota’s practice of offering excise-tax credits to brewers with annual production below some indicated level inconsistent with GATT III:2 first sentence. Even though, for the sake of argument, the credit was assumed to also be available to foreign breweries meeting the

²⁹ Japan-Alcohol, *supra* note 25, at 28.

³⁰ Hillman, *supra* note 10, at 9.

³¹ See *US- Automobile Taxes*, *supra* note 27. In the US-Taxes on Automobiles case, the European Community (EC) contended that “All automobiles represented a single like product. Therefore, by carving out an artificial tax category for automobiles sold for \$30,000 and above, which hit European imports with a punitive tax, while exempting almost all US cars or subjecting them to a minimal tax, the United States had violated Article III:2, first sentence.” (parag. 3.5). In its unadopted report, the Panel “noted that the central issue raised by the parties was whether under Article III:2 cars selling for more than \$30,000 were “like” products to domestic cars selling for less.” (parag. 5.5) The Panel recognized that “two individual products could never be exactly the same in all aspects. They could share common features, such as physical characteristics or end us, but they would differ in others”(parag. 5.6)). The Panel went on to conclude that, because the Luxury Tax threshold did not appear to have been chosen so as to target European autos, it was not in violation of GATT III:2.

same production restriction, the GATT Panel judged the tax credit policy as imposing a higher tax rate on “beer produced by large breweries [that] is not unlike beer produced by small breweries [while]...the United States did not assert that the size of the breweries affected the nature of the beer produced or otherwise affected beer as a product”³²In short, the Panel regarded the origin-neutrality of the policy as irrelevant if the policy taxed like goods differentially³³.

The report of the Appellate Body (AB) in the 1996 Japan-Alcoholic Beverages case similarly suggests that any difference in the taxes facing like goods is unacceptable:

If the imported and domestic products are "like products", and if the taxes applied to the imported products are "in excess of" those applied to the like domestic products, then the measure is inconsistent with Article III:2, first sentence.

whereby

[e]ven the smallest amount of ‘excess’ is too much. ‘The prohibition of discriminatory taxes in Article III:2, first sentence, is not conditional on a ‘trade effects test’ nor is it qualified by a *de minimis* standard’³⁴.

2. Likeness

Some analysts have inferred from these cases that GATT III:2 first sentence allows *no* distinction in the tax treatment of like goods, regardless of whether the distinction is origin-neutral, is non-protectionist in design, and has no discernible effect on trade or market shares. Thus, unless the WTO is willing to treat embodied carbon as an allowable tax basis---see section 4 for a discussion of this possibility---a CFT could well be found inconsistent with GATT III:2 first sentence if goods with high- and low-embodied carbon are deemed “like” goods, a question to which we now turn.

WTO jurisprudence suggests that “like” is narrowly defined in the context of GATT III:2 first sentence. Most WTO jurisprudence has followed the recommendation of the 1970 Working Party on Border Tax Adjustments which suggested the criteria for determining whether products are “like”: “the product’s end-uses in a given market; consumers’ tastes and habits, which change

³² GATT Panel report on United States – Measures Affecting Alcoholic and Malt Beverages, DS23/R – 39S/206, at parag. 5.19 (adopted Jun. 19, 1992). [hereafter US-malt beverages].

³³ Howse and Regan note that the Report in the US-Malt Beverages case is the “only ... adopted report invalidating an origin-neutral process measure” and contend that “the result in that case can be explained by the fact that the United States offered essentially no policy justification for a law that had a disparate impact on foreign brewers,” Robert Howse & Donald Regan, *The Product/Process Distinction – An Illusory Basis for Disciplining ‘Unilateralism’ in Trade Policy*, 11 Eur. J. Int’l L. 249, 262 (2000).

³⁴ Japan—Alcoholic Beverages, *supra* note 25, at 23.

from country to country; the product's properties, nature and quality”³⁵ (GATT Working Party 1970 paragraph 18, McLure 2011b pp 255-262). A fourth criterion---tariff classification---was added in 1987³⁶. That is, likeness is to be judged based on commercial criteria. However, the Working Party further suggested “interpretation of the term [“like or similar products”] should be examined on a case-by-case basis”³⁷.

Although “like”-ness has often been judged solely on these commercial criteria, there have also been several recent cases in which non-commercial criteria were also given weight. For example, in the EC-Asbestos case, the Appellate Body remarked that chrysotile asbestos fibres were carcinogenic and thus physically different from other fibres (such as PVA, cellulose and glass). Moreover, the asbestos fibres posed sufficient health risks that were likely to affect consumer preferences³⁸. The AB also disagreed with an earlier Panel’s approach of concluding that goods were like if they satisfied a subset of the criteria outlined by the 1970 Working Party; the AB stated that that all four criteria should be considered when determining likeness, not just the criteria of whether the goods were physically identical or had the same end uses.³⁹

To be clear, the Asbestos ruling hardly sets a clear precedent for tax differentials based on non-product related Process and Production Methods (npr-PPMs).⁴⁰ Firstly, consuming products containing asbestos compromises health, and so the restriction in question in the EC-Asbestos

³⁵ Working Party on Border Tax Adjustments, *supra* note 23, at parag. 18. *See also* Charles McLure, *The GATT-Legality of Border Adjustments for Carbon Taxes and the Cost of Emissions Permits: A Riddle, Wrapped in a Mystery, Inside an Enigma*, 11 Florida Tax Review 221, 255.

³⁶ *See* GATT Panel report on Japan – Customs Duties, Taxes and Labelling Practices on Imported Wines and Alcoholic Beverages, BISD 34S/83 (adopted Nov. 10, 1987), parag. 5.6. *See also* Robert Howse & Elisabeth Turk, *The WTO Impact on Internal Regulations – A Case Study of the Canada—EC Asbestos Dispute* (2006), available at <http://worldtradelaw.net/articles/howseasbestos.pdf>; and Bradley Condon, *Climate Change and Unresolved Issues in WTO Law*, 12 J. Int’l Econ. L. 8895, for further discussion.

³⁷ Working Party on Border Tax Adjustments, *supra* note 23, at parag. 18.

³⁸ WTO Appellate Body report on European Communities – Measures Affecting Asbestos and Asbestos-Containing Products, WT/DS135/AB/R (adopted Mar. 12, 2001) [hereinafter EC-Asbestos]. Regarding consumer preferences, the AB reasoned “a manufacturer cannot...ignore the preference of the ultimate consumer of its products. If the risks posed by a particular product are sufficiently great, the ultimate consumer may simply cease to buy that product. This would, undoubtedly, affect a manufacturer’s decisions in the marketplace” (parag. 122).

³⁹ *Id* at parag. 109. In the AB’s opinion, the Panel had expressed a “‘conclusion’ that the products were ‘like’” (parag. 109) after examining only the first and second of the four criteria, and then dismissed altogether the criterion of consumer preferences

⁴⁰ Charnovitz draws a useful distinction between types of npr-PPMs: a *how-produced* standard---which focuses on the method by which a good is produced, a *government policy* standard---whereby an importer restricts market access based on the *laws* in the exporting country, and a *producer characteristics* standard---whereby market access is contingent on the characteristics of the foreign producer, such as its historic emissions. Charnovitz argues that a *how-produced* “might be subject to less scrutiny [than other npr-PPMs] because its means are more clearly related to its policy ends,” Steve Charnovitz, *The Law of Environmental ‘PPMs’ in the WTO: Debunking the Myth of Illegality*, 27 Yale J. Int’l L 59, 102. Although a consumption tax on embodied carbon would not be a *standard*, per se, it would fit into Charnovitz’s taxonomy as a *how-produced* npr-PPM.

case was a *product* restriction, not a npr-PPM restriction. Secondly, the AB's ruling that health considerations can be considered when determining "likeness" was in the context of III:4, not III:2. As the Appellate Body has asserted on numerous occasions, the meaning of "like" varies according to context; while "like" is interpreted broadly in the context of III:4, it is interpreted more narrowly in the context of III:2 first sentence.

Nevertheless, the AB's ruling in the Asbestos case is relevant because it allows a distinction between products based on health attributes when determining likeness without having to invoke an exception, thereby rejecting the view that health and safety concerns can *only* be addressed through appeals to Article XX.⁴¹ Moreover, when the AB rejected the Panel's approach of concluding two goods are "like" based on just two criteria (rather than the full set), the AB rejected the principle that satisfying a subset of criteria--e.g. physical similarities and end uses--is a sufficient condition for two goods to be deemed "like".⁴²

Similarly, in the EC-Biotech case, the Panel's findings suggest a willingness on the part of the WTO to distinguish between goods based on origin-neutral PPMs. In this case, Argentina complained of a GATT III:4 violation, presuming along the way that biotech and non-biotech products were "like" goods. But instead of investigating whether biotech and non-biotech products were indeed "like", the Panel rejected Argentina's complaint on the grounds that there was no evidence that domestic biotech goods had been treated more favourably than imported biotech.⁴³ In doing so, we believe the Panel implicitly distinguished between products based on their production methods (biotech versus non-biotech), suggesting that origin-neutral policies which differentiate between products based on npr-PPMs can be consistent with III:4.

As with the Asbestos case, the Panel's findings in the EC-Biotech case do not give a clear precedent regarding likeness in the context of GATT III:2 first sentence. Biotech and non-

⁴¹ The AB rejected the Panel's reasoning that "considering evidence relating to the health risks associated with a product, under Article III:4, nullifies the effect of Article XX(b)...", arguing that the "scope and meaning of Article III:4 should not be broadened or restricted... simply because Article XX(b) exists and may be available to justify measures inconsistent with Article III" (EC-Asbestos, *supra* note 38, parag. 115).

⁴² Specifically, the AB wrote that, "having adopted an approach based on the four criteria set forth in *Border Tax Adjustments*, the Panel should have examined the evidence relating to *each* of those four criteria and, then, weighed *all* of the evidence, along with any other relevant evidence, in making an *overall* determination of whether the products at issue could be characterized as "like" (EC-Asbestos, *supra* note 38, parag. 109)).

⁴³ WTO Panel report on European Communities – Measures Affecting the Approval and Marketing of Biotech Products, WT/DS291/R, WT/DS292/R, & WT/DS293/R, (circulated Sep. 29, 2006) [hereafter EC-biotech]. Argentina alleged (amongst other things) that the EC had "accorded 'less favourable treatment' to the biotech products ...than to like non-biotech products" (parag. 7.2512) since the latter "may be marketed in the European Communities, whereas the relevant biotech products may not be marketed" (parag. 7.2513). In its report the Panel held "that domestic biotech products have not been less favourably treated in the same way as imported biotech products, or that the like domestic non-biotech varieties have been more favourably treated than the like imported non-biotech varieties. In other words, Argentina is not alleging that the treatment of products has differed depending on their origin. In these circumstances, it is not self-evident that the alleged less favourable treatment of imported biotech products is explained by the foreign origin of these products rather than, for instance, a perceived difference between biotech products and non-biotech products in terms of their safety, etc." (parag. 7.2514).

biotech products will inevitably differ at a molecular level, and so could be deemed unlike on the basis of having different product characteristics. Moreover, in the EC-Biotech case---as in the Asbestos case---the Panel was asked about GATT III:4, not III:2 first sentence. Nevertheless, we find it instructive that the Panel did not interpret likeness using purely commercial criteria. For example, the Panel could have kept an open mind about whether biotech and non-biotech are directly competitive or substitutable products (DCSP) and actually evaluated whether Argentina's complaint had merit. Instead, when the Panel said Argentina needed to show that imported and domestic biotech were unequally treated, the Panel tacitly suggested that regulations that are origin-neutral in design and application are not grounds for complaint, even without considering first whether the products in question are indeed “like”. This reading is consistent with Pauwelyn’s assessment that these precedents may represent an emerging trend in which “in the future, most of the attention is likely to go not to likeness but to whether the regulation differentiates, either de jure or de facto, based on origin.”⁴⁴ This does not mean, of course, that origin-neutrality automatically renders measures consistent with National Treatment. In the 2012 Tuna II (Mexico) case, the Appellate Body reversed the Panel’s presumption that origin-neutral measures “cannot be relevant in assessing the inconsistency of a particular measure with Article 2.1 of the *TBT [Technical Barriers to Trade] Agreement*”, noting that “a measure may be *de facto* inconsistent with [TBT] Article 2.1 even when it is origin-neutral on its face.”⁴⁵

Further evidence that the WTO might be willing to treat goods with high- and low-embodied carbon as distinct comes from the 2013 Appellate Body decision in the Canada-FIT (Feed-in Tariff) case.⁴⁶ Here the AB ruled that the reference market for electricity from wind and solar

⁴⁴ Joost Pauwelyn, *The Unbearable Lightness of Likeness* (2006), at 11, *available at* http://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID2030940_code197021.pdf?abstractid=2030940&mirid=1 (last accessed Dec. 14, 2012).

⁴⁵ WTO Appellate Body report on United States—Measures Concerning the Importation, Marketing, and Sale of Tuna and Tuna Products, WT/DS381/AB/R (circulated May 16, 2012), at parag. 225.

⁴⁶ WTO Appellate Body report on Canada – Certain Measures Affecting the Renewable Energy Generation Sector, WT/DS412/AB/R & WT/DS426/AB/R (circulated May 6, 2013) [hereinafter Canada-FIT]. At the heart of the Canada-FIT dispute was a local content requirement in Ontario, Canada for wind- and solar photovoltaic (PV) electricity generators wishing to sign contracts for Feed-in-Tariffs (FIT). The complainants alleged that FIT program conferred a benefit by delivering to renewable generators contracted prices well above those available in the wholesale electricity market. The Appellate Body ruled that electricity prices in the competitive wholesale market were not relevant for determining whether a benefit existed since the markets for electricity from renewable and conventional sources were separate, with the former existing only because it had been created via government intervention. Two arguments were at the heart of the AB’s conclusions regarding separateness: differences in the product related PPMs of conventional and renewable electricity, and differences in their npr-PPMs.

Regarding npr-PPMs, the AB recognizes that governments may want to create markets for renewable electricity because they generate fewer negative production externalities:

“a comparison between renewable energy electricity generators and conventional energy electricity generators requires consideration of the full costs associated with the generation of electricity. In this respect, if, on the one hand, higher prices for renewable electricity have certain positive externalities, such as guaranteeing long-term supply and addressing environmental concerns, on the other hand, lower prices for non-renewable electricity generation have certain negative externalities, such as the adverse impact on human health

photovoltaic (PV) sources is not the “competitive wholesale electricity market as a whole.”⁴⁷ Instead the relevant markets are the “competitive markets for wind- and solar PV-generated electricity, which are created by the government.”⁴⁸ The AB further reasoned that creating a separate market for wind and solar PV-generated electricity is justified because generating electricity from these energy sources creates fewer negative externalities than generation from fossil fuels, for example. Again, the context is quite different from that in which a CFT is likely to be challenged: in the Canada-FIT case the measure in question was a local content requirement, not a product tax. Moreover, market separateness was considered in the context of the SCM Agreement not GATT. Nevertheless, the Canada-FIT case provides an example of the AB allowing npr-PPMs to serve as the basis for treating markets as separate. If we allow the corollary that goods with separate markets cannot be “like”, then the Canada-FIT case sets an indirect precedent for treating goods as un-“like” based on their npr-PPMs.

Consumer preferences might serve as additional grounds for differentiating goods based on carbon intensity. As contemplated by several scholars, some informed consumers will voluntarily draw a distinction between small- and large-footprint goods, thereby justifying treating the goods as un-like.⁴⁹

However, a counter-argument could run as follows: if countries are allowed to distinguish between goods based on consumer biases linked to npr-PPMs, this could open the door for a range of protectionist policies. For example, a high-wage country might levy taxes on goods

and the environment of fossil fuel energy emissions and nuclear waste disposal. Considerations related to these externalities will often underlie a government definition of the energy supply-mix and thus be the reason why governments intervene to create markets for renewable electricity generation.” (parag. 5.189)

Regarding product related PPMs, the AB also noted that electricity from windpower and solar PV technologies is effectively inferior to electricity from conventional sources in terms of dispatchability: “[w]indpower and solar PV technologies produce electricity intermittently (depending on the availability of wind and sun) and cannot be relied on for base-load and peak-load electricity.” (parag. 5.174).

Although the AB discusses the fact that wind and solar PV electricity is a poor substitute for non-renewable electricity, they do not suggest that the lack of substitutability runs in both directions. Quite the opposite. The AB notes that conventional generators “produce an identical commodity that can be used for base-load and peak-load electricity ... and exercise price constraints on windpower and solar PV generators” (parag. 5.174). Given that nonrenewable electricity is a close substitute for wind and solar PV electricity, then, if product attributes were the only relevant factors, the AB would have been justified in treating the market for conventional electricity as the relevant market for benefit determination in the case of wind and solar PV electricity contracts. Thus we infer that the AB’s decision to treat the markets as separate stems from its acceptance of the underlying policy objectives, namely delivery of a reliable energy supply that includes electricity from renewable sources because of their desirable npr-PPMs.

⁴⁷ Id. at 125.

⁴⁸ Id.

⁴⁹ See generally Low, Marceau, & Renaud, *supra* note 14; Robert Howse & Antonia Eliason, Domestic and International Strategies to Address Climate Change: an Overview of the WTO Legal Issues (2009), available at <http://ebooks.cambridge.org/chapter.jsf?bid=CBO9780511757396&cid=CBO9780511757396A016>; Jagdish Bhagwati & Petros Mavroidis, Is Action Against US Exports for Failure to Sign Kyoto Protocol WTO-Legal?, 6 World Trade Review 299, (2007).

produced by workers earning low wages, on the grounds that some consumers prefer goods produced by workers protected by minimum-wage laws.

To avoid this counter-argument, it might be important to distinguish between externalities that are mechanical in nature versus those that are ethical. A consumer's preference for goods produced by "fairly-paid" workers arguably stems from a moral externality suffered when consuming goods produced in a distasteful manner. In contrast, the externality arising from CO₂e releases is mechanical in nature, as climate change directly impacts the health and safety of the consumer herself. Of course the act of consuming a high-footprint product may not contribute to climate change directly. However a standard replenishment argument links a product's npr-PPMs to the product itself: "consumption of physically identical products which differ only in their processing history [can] have different consequences.... In the normal course of economic activity, when a product is sold to the consumer, the seller will tend to replenish his supply from the same source. That means that the purchase of a can of ...dolphin-unsafe tuna tends to encourage the subsequent production of dolphin-unsafe tuna."⁵⁰ Consequently, an argument might be advanced that consuming a good with high embodied-carbon content poses a health risk to the consumer herself. As informed consumers will distinguish between such goods accordingly, goods with high- and low-embodied-carbon are thus un-like on the grounds of consumer preference.⁵¹

Marceau and Trachtman point out that, if goods are sufficiently dissimilar in the eyes of consumers, then distinguishing between them for regulatory purposes seems redundant: "if consumer preferences are strong enough to make them unlike, there is little need for regulation...if the persons protected by the regulation are the consumers, rather than third parties."⁵² With carbon, a consumer may distinguish between goods based on the harm that they indirectly cause that consumer. However a tax would be necessary to get consumers to internalize the additional costs that CO₂e emissions impose on people other than themselves. As a result, consumer recognition of feedback effects from CO₂e emissions to their own health and safety might justify treating goods with high- and low-embodied carbon as un-like; externalities would in-turn justify taxing those goods according to global social damages instead of private damages.

In summary, we believe recent WTO jurisprudence has opened the door for treating small- and large-footprint goods as unlike, be it because of consumer preferences as per the EC-Asbestos case or because of environmental externalities as per the Canada-FIT case. For any carbon policy to pass through this door it must also be origin-neutral and neither *de jure* nor *de facto*

⁵⁰ Howse & Regan, *supra* note 33, at 262.

⁵¹ Howse and Türk argue that it is not essential that *all* consumers in a market differentiate between goods with high- and low-embodied carbon, as "competing firms in the marketplace often differentiate their products to appeal to sub-groups of consumers, and those differentiations may change competitive relationships substantially," Howse & Türk, *supra* note 36, fn. 63 on 93.

⁵² Gabrielle Marceau & Joel Trachtman, A Map of the WTO Law of Domestic Regulation of Goods (2006), at 56, available at <http://ebooks.cambridge.org/chapter.jsf?bid=CBO9780511511325&cid=CBO9780511511325A008>.

discriminatory. We would be remiss, however, if we gave the impression that the WTO is certain to approve of a CFT. With this in mind, in section 4 we will assess whether there might be viable “workarounds”---i.e. alternate defenses of a CFT, or indeed different regulatory designs---that would render some type of consumption based carbon tax WTO-consistent.

3 Exports

The preceding section addressed whether levying footprint taxes on imported goods would survive challenges via the WTO; in this section we address the complementary question of how exported goods should be treated.

As outlined above, destination-based carbon policy would entail zero-rating exported goods. This means the CFT-levying country would not tax goods it ships abroad. It would be up to the importing country to levy appropriate charges. The legal basis for exempting exported goods from consumption taxes can be found in Footnote 1 to the Agreement on Subsidies and Countervailing Measures, which stipulates that exempting exporters from certain taxes is not to be construed as an export subsidy:

“the exemption of an exported product from duties or taxes borne by the like product when destined for domestic consumption, or the remission of such duties or taxes in amounts not in excess of those which have accrued, shall not be deemed to be a subsidy.”⁵³

As noted above, a CFT would be an indirect tax levied on a product rather than its producer. As such, the CFT should automatically be eligible for border adjustment upon export.⁵⁴

Complaints may arise nonetheless on the grounds that zero-rating exports would be inconsistent with the environmental motivation for the tax, or that a destination based carbon tax would constitute double taxation for foreign producers. To some extent we agree on both points. Allowing exporters to use carbon intensive inputs and production methods without paying corresponding taxes eliminates incentives for innovation and abatement if those goods are not subject to footprint taxation in their destination markets. Similarly, foreign producers that are subject to either direct regulations or origin-based carbon taxes in their home countries will be

⁵³ Agreement on Subsidies and Countervailing Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, THE LEGAL TEXTS: THE RESULTS OF THE URUGUAY ROUND OF MULTILATERAL TRADE NEGOTIATIONS 231 (1999), 1869 U.N.T.S. 14,[hereinafter ASCM].

⁵⁴ We acknowledge that this matter is not entirely settled. While a CFT would be a tax levied upon a product, the *amount* of CFT levied upon any particular item will depend on the npr-PPMs of that item. It could therefore be argued that a CFT is a de facto charge on non-incorporated inputs, similar to an energy tax. As Huffbauer, Charnovitz and Kim explain, there is ambiguity in the ASCM and its Annexes as to whether energy taxes are eligible for BTAs if these are not “prior stage cumulative taxes”, *see supra* note 7, at 39.

charged for their emissions twice, prompting them to undertake carbon reduction strategies that are overly aggressive from a global efficiency perspective.

Nevertheless, precedent suggests that the WTO is likely to reject challenges to the CFT based on such complaints. In the Superfund case, the European Economic Community (EEC) argued that rebate for exports violated the Polluter Pay's Principle because exported products would go untaxed in both the exporting and importing country. They also argued that the Superfund tax constituted double taxation on the grounds that "a substance containing the chemical exported from the EEC to the United States would have to bear the costs of environmental protection twice: once in the exporting country in accordance with the Polluter-Pays Principle and again upon importation into the United States under the Superfund Act."⁵⁵

In response, the Panel reasoned that, while the "General Agreement's rules on tax adjustment ... give the contracting party ... the possibility to follow the Polluter-Pays Principle, ...they do not oblige it to do so"⁵⁶. Instead, what determines whether a tax is eligible for adjustment is whether it is levied directly on products and thus constitutes an indirect tax. The underlying motive for the tax was deemed unimportant: "[w]hether a sales tax is levied on a product for general revenue purposes or to encourage the rational use of environmental resources, is ... not relevant for the determination of the eligibility of a tax for border tax adjustment."⁵⁷

The Panel's conclusions in the Superfund case uphold the longstanding principle that one country's origin based tax system does not render its trade partner's destination based system inconsistent with the GATT.⁵⁸ The Superfund precedent aside, we acknowledge that the problem of double-taxation will arise when an importer practices destination-based carbon pricing while its trade partner exercises origin-based pricing. As with VAT and Superfund taxes, it would appear that the WTO would place the onus for correcting this problem on the country with the

⁵⁵ GATT Panel report on United States – Taxes on Petroleum and Certain Imported Substances, BISD 34S/136, at 8 (adopted Jun. 17, 1987) [hereinafter US-Superfund].

⁵⁶ Id. at 17.

⁵⁷ Id. The complete text is as follows: "If a contracting party wishes to tax the sale of certain domestic products (because their production pollutes the domestic environment) and to impose a lower tax or no tax at all on like imported products (because their consumption or use causes fewer or no environmental problems), it is in principle free to do so. The General Agreement's rules on tax adjustment thus give the contracting party in such a case the possibility to follow the Polluter-Pays Principle, but they do not oblige it to do so."

⁵⁸ Similar issues arose in the 1950s and 1960s when many countries moved to Value Added Taxes (VATs); trade partners complained that VATs mimicked tariff-cum-export subsidy programs and double taxed goods imported from countries with origin based tax systems. In response, a number of economists provided theoretical models showing that destination-based VATs, origin-based VATs, and zero-tax regimes all deliver identical relative consumer and producer prices---and leave trade volumes unaffected---if exchange rates are flexible and taxes are uniformly applied, *see generally* Gene Grossman, *Border Tax Adjustments: Do they Distort Trade?*, 10 J. Int'l Econ. 117 (1980); John Whalley, *Uniform Domestic Tax Rate, Trade Distortions and Economic Integration*, 11 J. Pub. Econ. 213 (1979); Ben Lockwood, David De Meza, & Gareth Myles *When are Origin and Destination Regimes Equivalent?* 1 Int'l Ta Pub. Fin. 5 (1994). Moreover, Feldstein and Krugman showed that neglecting to zero-rate exports was protectionist as it was equivalent to taxing imports, Martin Feldstein & Paul Krugman, *International trade effects of value-added taxation* (1990), available at <http://www.nber.org/chapters/c7211.pdf>.

origin-based system. In the case of carbon taxes, this would suggest exporters from origin-based countries should ask their governments for rebates on emission/footprint taxes already paid.

IV. Alternate Defenses of a Carbon Based Product Tax

Although there have been a number of recent cases in which the WTO has allowed goods to be treated as dissimilar because of health or environmental considerations, there are as yet no unambiguous precedents for taxing products according to their embodied carbon content. In this section we discuss options for defending a challenge to a CFT, either in terms of how a CFT would be described or implemented.

1. Taxing Carbon *Inputs* as per Superfund and GATT II:2(a)

If a CFT is deemed inconsistent with GATT Article III on the grounds that low- and high-carbon goods are “like”, the policy of taxing goods based on their embodied carbon might alternately be defended on the grounds that the tax is allowed by GATT Article II:2(a), which reads as follows:

“Nothing in this Article shall prevent any contracting party from imposing at any time on the importation of any product: (a) a charge equivalent to an internal tax imposed consistently with the provisions of paragraph 2 of Article III 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...”⁵⁹

On the surface Article II:2(a) seems to authorize a range of import BTAs based on any internal taxes levied on production inputs, including energy and/or emissions. If, for example, emissions can be treated as a production input, then the CFT could be defended on the grounds that it is a tax on CO₂e inputs used.⁶⁰

The US-Superfund case provides some insight into the WTOs treatment of taxes on inputs. As part of the US’ Superfund Amendments and Reauthorization Act of 1986, the US levies a revenue generating tax on the use of certain feedstock chemicals used in the manufacture of chemical derivative products. Under Superfund, imported chemicals from abroad are assessed a tax according to the amount of the taxed feedstock chemicals used during their production⁶¹.

⁵⁹ GATT 1994, *supra* note 21, art. 2.2.

⁶⁰ Low, Marceau and Reïnaud argue that carbon emissions are an output, not an input, of production, *see generally* Low, Marceau, & Renaud, *supra* note 14. If the WTO were to construe energy inputs as adjustable but not CO₂e inputs, then a modified consumption tax levied on fuels--and varying across fuels according to their CO₂e contributions---might be advisable, even though it would leave non-fuel related releases untaxed.

⁶¹ See Paul Demaret & Raoul Stewardson, *Border Tax Adjustments under GATT and EC Law and General Implications for Environmental Taxes*, 28 J. World Trade 5, 20 (1994); Frank Biermann & Rainer Brohm,

That is, the BTA applied to imported final chemicals varies depending on the amount of feedstock embodied in the imported chemical. In 1987 the Superfund tax was challenged by Canada and the EEC on the grounds that the tax “was designed to tax polluting activities that occurred in the United States...”⁶² A GATT Dispute Settlement Panel ruled in favour of the US on the grounds that the border adjustment applied a charge on imported final chemicals that was equivalent to the tax that would have been levied on those chemicals had they been produced in the US.^{63 64}

The Panel’s ruling in the Superfund case is regularly cited as precedent for taxing goods based on inputs used. It should be noted, however, that the Panel did not stipulate whether those inputs needed to be physically incorporated into the traded good. Demaret and Stewardson point out that GATT II:2(a) is similarly ambiguous on this point. The equally authentic French language version of Article II:2(a) uses the term “incorporée” (translated as “incorporated”), making it unclear “whether Article II:2(a) is intended to limit Article III, so that only taxes on physically incorporated articles are eligible for adjustment on the import of the like final product, or merely to itemize one of the meanings of a tax applied “indirectly” to a product.”⁶⁵

We therefore conclude that it is an outstanding legal question as to whether Article II:2(a) permits a country to levy an internal tax on imported goods based on the non-incorporated inputs used to produce those goods, and thus whether a tax on CO₂e or fuel inputs would be deemed GATT-consistent.

2. Invoking an Appeal to GATT Article XX

A central problem with basing consumption taxes on embodied carbon is that the basis for taxation depends on npr-PPMs. Many observers have suggested that regulations regarding npr-PPMs might be allowed under an appeal to GATT Article XX, which lays out exceptions to the

Implementing the Kyoto Protocol Without the USA: the Strategic Role of Energy Tax Adjustments at the Border, 4 Climate Policy 289, 294 (2004).

⁶² US-Superfund, *supra* note 55, at 17.

⁶³ *Id.* at 19.

⁶⁴ Similar to the Superfund tax, the United States also imposes an Ozone Depleting Chemicals (ODC) tax on imports of goods produced using ozone depleting substances. The amount of the border tax adjustment is “based on the amounts of substances used, as reported by the importer or calculated according to the predominant production method approach,” Biermann & Brohm, *supra* note 61, at 294. Although some of the taxed inputs are consumed during production---and so the ODC tax can be viewed as a tax on npr-PPMs---this tax has never been challenged and thus does not provide a precedent for WTO-sanctioned npr-PPM-based environmental taxes. The motive for the tax was the US’ commitment under the Montreal Protocol to phase out ODCs, which could explain why there has been no WTO challenge to date. However, given the ODC tax was implemented two years after the WTO’s Superfund ruling was adopted, the lack of a WTO challenge to the ODC tax might alternately be construed as evidence that other countries perceive the Superfund precedent as extending to non-incorporated inputs.

⁶⁵ Demaret & Stewardson, *supra* note 61, at 19.

GATT disciplines. As described in US-Gasoline⁶⁶, when considering an appeal to Article XX, Dispute Settlement Panels undertake a two-step evaluation, examining first whether the measure in question is provisionally justified under the ambit of one of Article XX's ten subparagraphs. Then, if warranted, they examine whether the measure is consistent with Article XX's chapeau. We'll look at each of these steps in turn.

The subparagraphs commonly invoked to defend environmental policies are XX(b) and XX(g):

"Article XX

...nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

...(b) necessary to protect human, animal or plant life or health;
...(g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption;..."⁶⁷

GATT XX(g) relates to resource conservation. Although this subparagraph only references exhaustible resources, in a number of cases either the DSP or AB has confirmed that renewable natural resources should be considered exhaustible if they can be depleted; see for example the US-Shrimp⁶⁸ disputes, the Canada-Salmon dispute⁶⁹, and the US-Gasoline⁷⁰ dispute.

A CFT would reduce the amount of carbon released when producing goods consumed in the levying country, thereby mitigating climate change. Climate change threatens the survival of numerous species⁷¹, which are exhaustible resources. Species extinctions aside, the WTO might also accept a defense that a stable climate is itself a valuable natural resource that can be depleted. This argument would follow similar reasoning to that accepted in the US-Gasoline case, in which the Panel concluded that clean air was an exhaustible natural resource:

In the view of the Panel, clean air was a resource (it had value) and it was natural. It could be depleted. The fact that the depleted resource was defined with respect to its

⁶⁶ WTO Report of the Appellate Body on United States—Standards for Reformulated and Conventional Gasoline, WT/DS2/AB/R (adopted 20 Apr. 1996) [hereinafter US-Gasoline].

⁶⁷ GATT 1994, *supra* note 21, art. 20.

⁶⁸ See WTO Report of the Appellate Body on United States-Import Prohibition of Certain Shrimp and Shrimp Products, WT/DS58/AB/R (adopted 12 Oct. 1998) [hereinafter US-Shrimp], par. 128.

⁶⁹ See GATT Report of the Panel on Canada -Measures Affecting Exports of Unprocessed Herring and Salmon, L/6268 – 35S/98 (adopted 22 Mar. 1988) [hereinafter Canada-Salmon], par. 4.4.

⁷⁰ See generally US-Gasoline, *supra* note 66.

⁷¹ See generally Chris Thomas, Alison Cameron, Rhys Green, et. al. *Extinction Risk from Climate Change*. 427 Nature 145 (2004); Ilya MacLean & Robert Wilson, *Recent Ecological Responses to Climate Change Support Predictions of High Extinction Risk*, 108 PNAS 12337 (2011).

qualities was not, for the Panel, decisive. Likewise, the fact that a resource was renewable could not be an objection.⁷²

These facts suggest climate change policies would likely meet the “exhaustible natural resources” criterion contained in GATT XX(g). It is less obvious whether a CFT would also meet the XX(g) proviso that measures be matched by domestic action. To the extent that a CFT would be levied on all goods consumed domestically, the CFT would certainly complement border measures with “restrictions on domestic ... consumption”. However it is possible the WTO would reject the practice of zero-rating, as this practice eliminates incentives for exporters to reduce their own footprints, thereby undermining the underlying objective: reducing global CO₂e emissions.⁷³

Alternately, an appeal might be made to XX(b). A number of observers contend that defending environmental policy through an appeal to XX(b) would be harder than an appeal to XX(g) because XX(b) stipulates that the measure must be “necessary” while XX(g) only says it must be “related to” the health or resource objective in question. In this context, “necessary” is often interpreted as least-trade-restrictive.⁷⁴

However, in both the Korea-Beef⁷⁵ and Brazil-Tyres cases, the AB has stated that “necessity” does not equate to “indispensable”. Instead, necessity is determined by a “weighing and balancing” procedure, which

“‘begins with an assessment of the 'relative importance' of the interests or values furthered by the challenged measure’, and also involves an assessment of other factors, which will usually include ‘the contribution of the measure to the realization of the ends pursued by it’ and ‘the restrictive impact of the measure on international commerce’.”⁷⁶

Indeed, in the Brazil-Tyres case the AB acknowledged that even highly trade restrictive measures may be “necessary”---

“in the light of the importance of the interests protected by the objective of the Import Ban, the contribution of the Import Ban to the achievement of its objective outweighs its

⁷² US-Gasoline, *supra* note 66, par. 6.37.

⁷³ In the Brazil-Tyres case, the AB ruled that Brazil’s ban on imports of used tyres violated the chapeau of GATT XX because the ban did not extend to other members of MERCOSUR. Although a DSP had condoned this exception on the grounds that it had been forced upon Brazil by a MERCOSUR tribunal, the AB rejected this defense on the grounds that “the reasons given for this [exemption] bear no rational connection to the [health] objective falling within the purview of a paragraph of Article XX, or would go against that objective,” *see* WTO Report of the Appellate Body on Brazil-Measures Affecting Imports of Retreaded Tyres, WT/DS332/AB/R (adopted 3 Dec. 2007) [hereafter Brazil-Tyres], par. 227.

⁷⁴ *See e.g.* Bhagwati & Mavroidis, *supra* note 49, at 308.

⁷⁵ WTO Report of the Appellate Body on Korea – Measures Affecting Imports of Fresh, Chilled, and Frozen Beef, WT/DS161/AB/R (circulated 11 Dec. 2000) [hereinafter Korea-Beef].

⁷⁶ Brazil-Tyres, *supra* note 73, par. 143.

trade restrictiveness,”⁷⁷ even though an import ban is “by design as trade-restrictive as can be”⁷⁸

---suggesting that the WTO may be amenable to carbon policies that interfere with trade if those policies deliver significant environmental benefits. Moreover, the AB has itself discussed climate change policy in the context of XX(b), describing climate change attenuation policy as an example of a measure with benefits that “can only be evaluated with the benefit of time.”⁷⁹

Even though a CFT might be deemed provisionally justified under the ambit of either XX(b) and or XX(g), in order for an appeal to Article XX to succeed it would also have to satisfy the article’s chapeau, which stipulates that for any measure to be justified under Article XX it must also be

Subject to the requirement that such measures are 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...⁸⁰

With the chapeau in mind, Low, Marceau and Renaud argue that defending a policy through an appeal to Article XX(g) is unlikely to succeed unless the measure is “sufficiently flexible and consider[s] measures other Members have enacted, which are comparable in effectiveness, to address the same policy objectives. A country may be obliged to impose lower requirements or none on countries that have their own legislation (comparable in effectiveness).”⁸¹ Satisfying the chapeau may also require that border carbon adjustments be adjusted so as to take into account the principle of “common but differentiated responsibilities” espoused in the UN Framework Convention on Climate Change, which may entail exceptions for imports from developing countries.⁸²

We agree that, in order to satisfy Article XX’s chapeau, a destination based carbon policy would need to accommodate efforts made by trade partners at reducing their own carbon emissions. With this in mind, Hillman (2013), for example, suggests “affording each company the opportunity to pay an individually determined tax that relates to their particular production process.”⁸³ Unless the tax was limited to just a few industries, we think this approach would be logistically infeasible. Tailoring carbon taxes to each importing company would require knowledge not only of each product’s carbon footprint, but also the extent to which carbon reduction efforts have already been undertaken, both by the firm itself and by its upstream suppliers of material and energy inputs.

⁷⁷ *Id.* at par. 179.

⁷⁸ *Id.* at par. 150.

⁷⁹ *Id.* at par. 151.

⁸⁰ GATT 1994, *supra* note 21, art. 20.

⁸¹ Low, Marceau, & Renaud, *supra* note 14, at 17.

⁸² *See generally* Hillman, *supra* note 10.

⁸³ *Id.* at 10.

3. Dual Instrument Approach: Uniform Carbon Footprint Taxes plus Carbon Reduction Incentive

As discussed earlier, a CFT in which product taxes are calculated according to the footprint of each good may violate GATT III:2 because goods that are identical except for their footprints will face different per-unit tax burdens. A possible solution to this problem would be to pursue the two pronged policy described below.

The first prong would involve a tax that is identical across all goods within the same product-class but varies across product-classes. We will call this tax a *Uniform CFT* (abbreviated hereafter as a UCFT).

Provided the UCFT amounts are set according to objective and transparent criteria, the UCFT should not run afoul of WTO law, since each would be an internal measure applied identically to like goods. An obvious methodology would be to set the UCFT for a given product-class equal to the economy-wide tax rate on CO₂e times an objective measure of carbon footprints for that product-class, such as the *default* footprints described in section 2.

The UCFT would be a credit-method destination-based consumption tax, levied at the point of sale or import. Rebates would be paid to firms using goods as intermediate inputs; exports would be zero-rated.

The second prong would involve a Carbon Reduction Incentive (CRI), which would be a subsidy paid to domestic consumers of final goods. A consumer would be eligible for CRI if she buys a product with a certified footprint that is smaller than the *default* for that product-class. The amount of CRI for which the consumer would be eligible would equal the difference between the UCFT paid on a product and the economy-wide tax rate on CO₂e times the certified footprint of the good purchased. Certification would be voluntary. Goods that are exported would be ineligible for the CRI, as they would not be consumed domestically, while imported goods would be eligible for the CRI under the same conditions as domestically consumed goods. Consumers would receive the CRI at the point of sale; importers of goods that are not resold in the importing market could apply for the CRI at the point of entry.

There would inevitably be goods that could serve as either final or intermediate goods, e.g. fuel and foodstuffs. In such cases, if a purchaser received a CRI at the point of purchase, but then used the good as an input into the production of a different good or service, she would be given the choice of treating the good as either a final good or an intermediate input. If she treated the item as a final good, she would be permitted to keep the CRI-received but forfeit the opportunity to have any UCFT-paid on the item rebated. If instead she refunded the CRI-paid, she would be eligible to have any UCFT-paid rebated.

Like the pure and hybrid CFTs discussed in section 2, the UCFT and CRI could be managed by the same entity that administrates value added taxes. A purchaser of a good would pay UCFT and VAT and receive CRI all at the point of purchase; amounts paid/received would be itemized on the product's receipt. UCFT remittances and refunds, as well as CRI repayments, would be executed at the same time as VAT remittances and refunds.

In application, pairing a UCFT with a CRI would have the same incentive effects as the hybrid-CFT. Producers of downstream goods who intend to have their own products certified would have an incentive to purchase inputs from low-carbon upstream suppliers, even if the tax-inclusive prices of the low-carbon upstream goods were no different from high-carbon substitutes; this is because the downstream supplier would be able to claim a smaller CF for her own output---and thus offer her own consumers a lower net price on her own product---if she used low-carbon inputs. Moreover, because a supplier would be better able to signal the CF of his upstream product if that CF were certified, upstream firms would face the same incentives for certification (and within-product greening) as under a hybrid-CFT.

The two instruments, would, however, be distinct in that one---the UCFT---would be applied throughout the production chain while the CRI would only be applied at the final link: consumption. This separation might be critical in distinguishing the UCFT as a set of internal fiscal measures governed by GATT Article III while the CRI would be a subsidy program governed by the Agreement on Subsidies and Countervailing Measures (ASCM).

Under the ASCM, only *specific* subsidies are actionable or prohibited. Specificity is addressed by ASCM Article 2. Paragraph 2.3 indicates that subsidies that are de facto contingent on export performance or use of local input are deemed specific (and, according to Article 3, prohibited). The other relevant criteria for non-specificity relevant to our purposes are outlined in 2.1(b):

Where the granting authority ... establishes objective criteria or conditions governing the eligibility for, and the amount of, a subsidy, specificity shall not exist, provided that the eligibility is automatic and that such criteria and conditions are strictly adhered to. The criteria or conditions must be clearly spelled out in law, regulation, or other official document, so as to be capable of verification.⁸⁴

There are two reasons why a CRI subsidy program might be deemed *specific*. Firstly, the maximum amount of subsidy theoretically available for goods in a particular product-class would equal the economy wide tax rate on CO₂e times the default for that product-class; as this maximum subsidy would vary across product-classes, the subsidy may be deemed *specific* even if the program were applied economy-wide using objective criteria.

Secondly, as per the footnote to ASCM 2.1(b)---

⁸⁴ ASCM, supra note 53, art. 2.1.

Objective criteria or conditions, as used herein, mean criteria or conditions which are neutral, which do not favour certain enterprises over others, and which are economic in nature and horizontal in application, such as number of employees or size of enterprise.⁸⁵

---a subsidy will be deemed specific unless the criteria for subsidization are economic in nature. Because CO2e emissions arise from the quantity and manner in which inputs are employed---e.g, land use patterns and fossil fuel combustion---, using certified embodied carbon emissions as a criterion for subsidization could be construed as economic in the same sense as “number of employees”. However, because the criterion relates to npr-PPMs, it is not certain that a Dispute Settlement Panel would agree that the criteria are economic (or horizontal).

As mentioned, if the low-carbon subsidy were deemed non-specific, it would be non-actionable. However, a CRI would not necessarily be actionable even if it were deemed specific. For this, a complainant would also have to show that the subsidy caused adverse effects, such as import displacement or other forms of injury, benefit nullification, or serious prejudice (ASCM Articles 5 and 6). This is an important distinction between the rules prohibiting differential taxes on like goods as per the first sentence of GATT III:2, and rules governing subsidies. In the tax case, many observers argue that *no* difference in taxes is allowed, regardless of whether the difference drives changes in market share or trade volumes. In contrast, unequal treatment does not make a specific subsidy actionable unless it also hurts another member. In this context it may matter that the injurious effects of the CRI won't fall exclusively on foreign firms; some domestic firms will also be hurt. Thus, the WTO might reject claims, for example, that a CRI causes “serious prejudice” to the interests of another member since some domestic firms also lose market share as a result of the CRI. Moreover, it might be difficult to prove that adverse effects such as export displacement or market share losses, for example, are actually the result of the subsidy program. Some stated willingness-to-pay studies have suggested that consumers are willing to pay large premiums for low-carbon goods⁸⁶. If, in response to the information conveyed by carbon labels (or by the data used to calculate the carbon subsidy), consumers shift their demand toward low-carbon goods for reasons other than the subsidy differential, it may be hard to prove that a given export displacement is the result of the subsidy program.

4. Carbon Passport Requirement

⁸⁵ *Id.* at art. 2.1.

⁸⁶ For example, a choice experiment found participants were willing to pay an average premium of €4.09 for a rose that was a low carbon variety, *see generally* Celine Michaud, Daniel Llerena, & Irageael Joly *Willingness to Pay for Environmental Attributes of Non-Food Agricultural Products: a Real Choice Experiment*. 40 *Eur. Rev. Agric.Econ.* 313 (2013). We should point out that this premium is likely a “protest” premium; the average willingness to pay of individual consumers for additional units of low carbon roses is probably considerably lower.

Hufbauer, Charnovitz and Kim suggest importing countries could make it mandatory that any goods consumed within their boundaries bear *carbon passports* documenting the emissions released during production of those goods, and goods be taxed based on these passports.⁸⁷ Pairing these passports with the CFT described in section 2 may forestall complaints that the CFT violates GATT III:2, because the passports would serve to differentiate high- and low-carbon goods as un-“like”.

Whether a passport requirement would itself be deemed WTO-consistent is unclear. As a mandatory labeling requirement, a carbon passport would be viewed as a technical regulation governed by the Technical Barriers to Trade (TBT) agreement (see definition 1 in Annex 1 of the TBT Agreement). Although TBT Article 2.2 specifically lists environmental protection as a legitimate objective, it also stipulates that technical regulations “shall not be more trade-restrictive than necessary to fulfill a legitimate objective, taking account of the risks non-fulfilment would create”.⁸⁸ TBT Article 2.1 further stipulates “in respect of technical regulations, products imported from the territory of any Member shall be accorded treatment no less favourable than that accorded to like products of national origin and to like products originating in any other country.”⁸⁹

Mandatory carbon-passporting rules would impose non-negligible compliance costs on all firms wishing to sell in the domestic market. Foreign firms that supply only a small number of units to the regulating market may stop trading entirely, thus a passporting requirement may well restrict trade. Moreover to the extent that the passports would alter the competitive opportunities for carbon-intensive imported goods in the eyes of carbon-sensitive consumer, competitive opportunities for foreign goods may also be impacted. In and of themselves, a change in competitive opportunities is not necessarily evidence of “less favourable treatment” of imported goods. In the US-Clove Cigarettes case, the Appellate Body stated that the TBT permits “detrimental impact on competitive opportunities for imports [if that impact] stems exclusively from legitimate regulatory distinctions.”⁹⁰

However, whether the “risks non-fulfilment would create” would be substantial in the case of a carbon passport requirement is unclear. While carbon passports would likely induce some substitution from high- to low-carbon goods by carbon-sensitive consumers, few observers would suggest that labeling would lead to large scale reductions in embodied carbon consumption on their own. The large changes in embodied carbon consumption would come

⁸⁷ See Hufbauer, Charnovitz, & Kim, *supra* note 7, at 68.

⁸⁸ See Technical Barriers to Trade Agreement, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, THE LEGAL TEXTS: THE RESULTS OF THE URUGUAY ROUND OF MULTILATERAL TRADE NEGOTIATIONS 17 (1999), 1867 U.N.T.S. 187, 33 I.L.M. 1153 (1994) [hereinafter TBT], art. 2.2.

⁸⁹ *Id.* at art. 2.1.

⁹⁰ WTO Report of the Appellate Body on United States – Measures Affecting the Production and Sale of Clove Cigarettes, WT/DS406/AB/R (circulated 4 Apr. 2012) [hereinafter US – Clove Cigarettes], par. 175.

from complementary carbon taxes. As a result, the trade disruptions arising from a mandatory carbon-passporting scheme may be deemed “more trade-restrictive than necessary” given that the environmental benefits from the passport requirement on its own would be small. In light of these points, we conclude it is unclear that a carbon passport would be consistent with the TBT agreement.

5. Carbon Penalties

A final policy alternative that should be mentioned is the use of carbon penalties. A country may wish to pass a regulation stipulating that all goods should have a certified carbon footprint of zero, and impose financial penalties on all goods with positive carbon footprints.⁹¹ Because carbon charges would be punitive, not fiscal measures, they would not be governed by GATT Article III:2 as per the Panel’s report in the US-Tobacco case⁹². However, as is the case with the carbon passport requirement, this approach may face challenges on the grounds that it may violate Article 2.1 and/or 2.2 of the TBT Agreement. Moreover, because any carbon charges would be *penalties*, as opposed to fiscal taxes, there would be no grounds for rebating payments to exporters.

V. Policy Comparison

In the preceding sections, we have assessed whether a consumption based carbon policy might serve as a logistically feasible, WTO-consistent means of reducing carbon emissions without sacrificing the competitiveness of domestic firms. We were motivated to undertake this analysis because we believe that the two types of policies currently in practice or under consideration---emissions trading (also known as Cap & Trade) and carbon taxes---cannot be paired with border measures in a WTO-consistent manner. In this section, we briefly discuss the evidence supporting our claim. We begin with emissions trading.

1. Border Measures and Cap & Trade

In a Cap & Trade system, covered entities would be required to surrender a fixed number of permits for each ton of CO₂e released. Permits might be allocated freely and/or auctioned. The European Union’s (EU’s) Emission Trading System (ETS) is the most prominent example of

⁹¹ In keeping with our earlier policy designs, it would be sensible to use a baseline CF to cap the penalty payable: if a product does not have a certified carbon footprint, it is assumed to have a footprint equal to the baseline for the good’s product-class, where the baseline is determined by some objective criterion.

⁹² See GATT Panel Report on United States – Measures Affecting the Importation, Internal Sale, and Use of Tobacco, DS44/R (adopted 4 Oct. 1994) [hereafter US-Tobacco], par. 117.

Cap & Trade; carbon permit trading systems are also either in place or soon entering into force in New Zealand and California.

A. Imports

The border measure most commonly considered in tandem with Cap & Trade is a requirement that importers purchase allowances for imported goods.⁹³ A number of questions follow naturally. What price should an importer pay per allowance, and how many allowances must she purchase? And would such requirements violate WTO principles?

Regarding the price, at first glance it would seem that the price in the spot market would be the obvious choice. However, if domestic firms receive some of their permits for free, equal treatment would suggest that importers should be given a discount off the market price, which would distort abatement decisions at the margin.

Figuring out how many permits must be purchased for each good imported is even more complicated. Letting permit requirements vary across goods based on country of origin would violate the Most Favoured Nation Treatment (MFN) principle; it would also hurt importers with below country-average carbon intensities. Even if the CF were assumed to be universal for all foreign-produced goods, this may still violate Article III (National Treatment) because a domestic carbon tax would “involve *variable* burdens based on individual domestic firms’ carbon emissions”⁹⁴ and thus the products of foreign producers must also be judged on a firm-by-firm basis.^{95,96}

Ismer and Neuhoff propose an elegant remedy: assign to imported goods the footprints they would have if they were produced using the global best available technology (BAT).^{97,98} Ismer

⁹³ The American Clean Energy and Security Act of 2009 required “the submission of appropriate amounts of [international reserve] allowances for covered goods with respect to the eligible industrial sector that enter the customs territory of the United States” (Sec. 768) but only for imports from countries that had higher energy or CO₂e intensities in the relevant sector than the US and had not signed a multilateral agreement (to which the US was also a signatory) in which their CO₂e reduction commitments were at least as stringent as the US,’ *supra* note 4, Sec. 767(c).

⁹⁴ See Michael Moore, *Implementing Carbon Tariffs: a Fool’s Errand?* 34 *World Econ.* 1679, 1681 (2011).

⁹⁵ Moore suggests that calculating BTAs on a firm-by-firm basis would result in “extremely difficult cross-border data collection requirements,” *supra* note 94, at 1681. He suggests it would impose additional problems similar to those currently arising with anti-dumping claims, including the difficulty of how to treat foreign firms that are uncooperative with investigators and how to adjust assessments over time.

⁹⁶ In addition, some proposed emissions trading schemes would only impose allowance requirements on imports from countries without comparable action to reduce greenhouse gas emissions. This begs the question as to what constitutes “comparable action”: if a trade partner has committed to binding emission reductions but a particular sector is exempt from compliance, will products from the exempt sector be subject to allowance requirements?

⁹⁷ See generally Roland Ismer & Karsten Neuhoff, *Border Tax Adjustment: A Feasible Way to Support Stringent Emission Trading*. 24 *Eur. J. L. Econ.* 137 (2007).

⁹⁸ Moore suggests an amendment in which the BTA should be based on the best available technology in the importing country. If a foreign firm’s emission intensity is even lower than this baseline, that firm would be welcome to submit proprietary data confirming its lower emission intensity, which would then become the basis for the tax adjustment on imports from that firm. See generally Moore, *supra* note 94.

and Neuhoff call this border adjustment a BAT BTA. The advantage of this approach is that the tax levied on imported goods would never be higher than the burden facing domestic producers of like goods. An obvious downside to the BAT BTA approach is that it would put domestic firms at a disadvantage vis-a-vis imports, as all but perhaps the least carbon-intensive domestic firms would face higher compliance costs than any of their foreign counterparts.

This discussion begs the conclusion that imposing allowance requirements on imported goods is WTO-consistent.

Writing in the context of a hypothetical US tradable permit program, Howse and Eliason argue that permit requirements would be regulations that should “not [be seen] as a tax or charge, and even less an Article XI quantitative restriction, but as ancillary to the enforcement or administration of a US regulatory scheme that applies to both domestic and imported products.”⁹⁹ Alternately, a country might pair domestic permit requirements with border measures applied in the form of a tax (calculated, for example, according to BAT as per Ismer and Neuhoff). The tax might be defended on the following grounds: domestic producers ultimately pass through to consumers the costs of permit obligations; thus a “border requirement to hold an allowance is ... arguably a ‘charge’ which is ‘equivalent’ to the internal requirement for US businesses to hold allowances which, in turn, is a kind of ‘internal tax.’”¹⁰⁰ We are pessimistic that either defense would hold. Permit obligations are regulations facing firms. The WTO has repeatedly rejected efforts to interpret domestic regulations and direct taxes as adjustable---see, for example, the Panel and Appellate Body reports in the US-Foreign Sales Corporations¹⁰¹ case. Indeed, as Hufbauer, Charnovitz and Kim point out, “the requirement that importers purchase [permits] seems to fit within “other duties and charges” on importation that are regulated by GATT Article II:1(b). If so, the requirement amounts to an automatic violation....”¹⁰² We similarly anticipate the WTO would be unwilling to translate a regulation levied *on firms* as an indirect tax on products in the case of carbon policy.¹⁰³

⁹⁹ Howse & Eliason, *supra* note 49, at 30.

¹⁰⁰ Joost Pauwelyn, *US Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law* (Nicholas Institute Working Paper 07-02, 2007), available at <http://nicholasinstitute.duke.edu/climate/policydesign/u.s.-federal-climate-policy-and-competitiveness-concerns-the-limits-and-options-of-international-trade-law#.UwKYuoVfEaY>, at 22.

¹⁰¹ WTO Report of the Panel on United States – Tax Treatment for “Foreign Sales Corporations,” WT/DS108/R (circulated 8 Oct. 1999) [hereafter US-Foreign Sales Corporations]. WTO Report of the Appellate Body on United States – Tax Treatment for “Foreign Sales Corporations,” WT/DS108/AB/R (circulated 24 Feb. 2000).

¹⁰² Hufbauer, Charnovitz, & Kim, *supra* note 7, at 81.

¹⁰³ Alternately, a country might levy a carbon fee on *all* goods sold domestically, but discount (to zero) the amount paid by domestically produced goods on the grounds that carbon costs were already paid via the domestic allowance program. However, equal treatment of imports would require that imported goods be eligible for similar discounts based on mitigation efforts undertaken abroad. Given that the range of possible abatement activities is vast, calculating such discounts would be infeasible.

B. Exports

The above discussion pertains to leveling the playing field with respect to imports. For exporters, a commonly proposed action is to rebate permit costs to exporters.¹⁰⁴ However, as mentioned permit requirements are likely to be deemed regulations, not indirect taxes, and thus ineligible for border tax adjustment.¹⁰⁵ Moreover, because permits have a market value, exempting a firm from surrendering allowances if and only if it exports may well be construed a prohibited export subsidy.

2. Border Measures & Emission Taxes

The other leading carbon policy is a carbon tax, particularly one levied on the latent emissions in fossil fuels. Sweden, Denmark, Norway, Finland, Italy, and the Netherlands all have carbon taxes, although all of these exempt some sectors and the implicit tax on carbon varies widely across fuels. British Columbia's carbon tax is instead levied on fuels based on their carbon content; two thirds of the province's CO₂e emissions are covered.¹⁰⁶ Ireland has similarly introduced a carbon tax on fuels as well as carbon-related charges on waste disposal and auto purchases.

As discussed in section 3, a carbon or energy tax might be eligible for border tax adjustment on the grounds that GATT Article II:2(a) allows governments to impose charges "equivalent to an internal tax...in respect of an article from which the imported product has been manufactured."¹⁰⁷ Applying a BTA based on global or domestic BAT would likely comply with National Treatment, eliminating the question of how border adjustments should be calculated.

However, as we also discussed above, it is unclear that carbon and/or fuel taxes meet the criteria laid out in II:2(a), as it has not been settled whether taxes levied on inputs that are not physically incorporated in the traded product are eligible for border tax adjustment. Indeed, when the Working Party on Border Tax Adjustments issued its 1970 report, it did not include energy taxes in the list of indirect taxes. Energy taxes were instead given as an example of *taxes occultes*--- clearly distinguishing them from indirect taxes and direct taxes. The Working Party refrained from drawing a conclusion as to the admissibility of taxes occultes for border tax adjustments

¹⁰⁴ Ismer and Neuhoff instead propose that "exported products should receive the same remission irrespective of how they were actually produced" so as to maintain incentives for actual emission reductions, and that the remission should be based on compliance costs when using the global BAT, priced at the average cost of permits, Ismer & Neuhoff, *supra* note 97, at 145.

¹⁰⁵ Javier de Cendra, *Can Emissions Trading Schemes be Coupled with Border Tax Adjustments? An Analysis vis-à-vis WTO Law*. 15 RECIEL 131, 135 (2006).

¹⁰⁶ See British Columbia Ministry of Finance, Budget and fiscal plan 2008/09 – 2010/2011, available at http://www.bcbudget.gov.bc.ca/2008/bfp/2008_Budget_Fiscal_Plan.pdf (last viewed 2 Nov. 2012), at 13.

¹⁰⁷ GATT 1994, *supra* note 21, art. 2.2.

because of the “scarcity of complaints reported in connection with adjustment of taxes occultes”¹⁰⁸

Some analysts suggest that the legal case for pairing emission/fuel taxes with export BTAs is stronger. Biermann and Brohm and Ismer and Neuhoff argue that the ASCM prohibits parties from interpreting rebates of energy taxes as export subsidies, on the grounds that ASCM Annex I (“Illustrative list of export subsidies”) item (h) indicates it is acceptable for countries to exempt, remit or defer “prior-stage cumulative indirect taxes ...levied on inputs that are consumed in the production of exported product”¹⁰⁹ even if the same country doesn’t allow rebates to non-exported like goods.¹¹⁰ Meanwhile, Footnote 61 to Annex II of the ASCM clarifies that energy is a “consumable” input: “[i]nputs consumed in the production process are inputs physically incorporated, energy, fuels and oils used in the production process and catalysts which are consumed in the course of their use to obtain the exported product.”¹¹¹ However, de Cendra, Hufbauer, Charnovitz and Kim, and McLure point out that ASCM Annex I item (h) only refers to *cumulative* taxes.¹¹² Importantly, the carbon-motivated energy taxes in place/under consideration are not cumulative. Moreover, in the “Uruguay Round, the US government went on record suggesting that item (h) and footnote 61 were *not* meant to allow export BTAs on energy inputs.”¹¹³ The American statement doesn’t bind the WTO, however, it does indicate that there has not been widespread consensus that the ASCM condones energy tax rebates to exporters. Consequently, whether the WTO will interpret energy or emission taxes as indirect taxes thus eligible for border adjustment is an open legal question.

To summarize this section, we think it unlikely that the WTO would regard favourably border measures applied in tandem with domestic emission trading. Permit requirements for imported goods would likely violate GATT II:1(b), while import taxes---even ones that are no greater than the burden facing domestic firms---will violate National Treatment. While these violations might be allowed under an appeal to GATT XX(g), satisfying the relevant chapeau by accommodating conditions in a variety of trade partners would be logistically infeasible. Pairing domestic fuel and/or emission taxes with BTAs stand a better chance, especially if the WTO allows border adjustment on non-incorporated inputs. In that event, the CFT would similarly be defensible as per the arguments outlined in section 4. Which policy is preferable would then depend on how policymakers value the tradeoffs. With a hybrid-CFT all of the firms selling domestically would have an incentive to reduce their carbon footprints, and domestic exporters would be on an even footing with unregulated competitors; however, firms would need to undertake costly certification in order to reap these competitiveness benefits. BAT BTAs would save on computational costs as there would be no need for any footprints to be calculated other those

¹⁰⁸ Working Party on Border Tax Adjustments, *supra* note 23, at 3.

¹⁰⁹ See ASCM, *supra* note 53, at annex I item (h).

¹¹⁰ See generally Biermann & Brohm, *supra* note 61; Ismer & Neuhoff, *supra* note 97.

¹¹¹ See ASCM, *supra* note 53, footnote 61 to annex II.

¹¹² See generally de Cendra, *supra* note 105; Hufbauer, Charnovitz & Kim, *supra* note 7; McLure, *supra* note 35.

¹¹³ See Hufbauer, Charnovitz, & Kim, *supra* note 7, at 45.

associated with the BAT for each product-class.¹¹⁴ The downside of the BAT BTA approach would be that all but the greenest domestic firms---including exporters---would be put at a competitive disadvantage with respect to dirty foreign-produced goods.

VI. Conclusion

“[C]limate change...is, simply, the greatest collective challenge we face as a human family.”¹¹⁵ Despite the urgency of immediate action, a binding successor to the Kyoto Protocol is nowhere on the horizon. Instead, countries wishing to mitigate climate change must act on their own. Yet many countries balk at significant unilateral reductions. They fear that cutting territorial emissions will impair domestic industry but do little to reduce global emissions as unregulated countries conduct business as usual.

One way governments can mitigate the competitiveness effects of unilateral carbon reductions is to adopt destination-based policy. By targeting the carbon releases associated with domestic consumption rather than production, governments can ensure that domestic producers are on an even footing with foreign competitors---even those producing in countries without active climate policy.

We argue that proposals to implement destination-based policy by pairing sub-global Cap & Trade programs with border adjustments will prompt legal challenges. Like others¹¹⁶, we believe that regulating domestic *firms* while taxing imported *products* would violate the WTO’s National Treatment principle. In this paper, we have argued that replacing Cap & Trade programs with product taxes would eliminate the complaint that domestic and foreign-produced goods are being treated differentially. Because the rules governing carbon footprint taxes would be identical for goods produced at home and abroad, a country could implement destination based carbon policy in a manner that would be *de jure* non-discriminatory.

As we have outlined, there are some legitimate concerns as to whether a carbon footprint tax would be consistent with WTO rules. There would invariably be cases in which imported goods face more tax per-unit than domestically produced substitutes, simply because the former have larger footprints. And some of these cases would inevitably involve products that have no latent emissions, such that domestic and imported goods would be identical but for differences in their production emissions. In such cases it is plausible that claims of *de facto* discrimination would arise.

¹¹⁴ See generally Ismer & Neuhoff, *supra* note 97; Moore, *supra* note 94.

¹¹⁵ Ki-moon Ban Remarks at 39th Plenary Assembly of the World Federation of United Nations Associations (2009), available at http://www.un.org/apps/news/infocus/sgspeeches/statments_full.asp?statID=555#.UvT4eUJdU0 (last viewed 5 Feb. 2014).

¹¹⁶ See e.g. Moore, *supra* note 94.

As we have argued, the Appellate Body might dismiss such claims on the grounds that carbon emissions have mechanical externalities that impact not only the regulating country but also the final consumer, and so small- and large-carbon footprint goods could be deemed un-like. But such a dismissal would not be assured, and so a well-designed product tax would need to be defensible on other grounds against charges of *de facto* discrimination.

We believe that replacing a pure-CFT with either a hybrid-CFT or a dual instrument approach (consisting of the UCFT plus CRI as outlined in section 4.3) would forestall many of these complaints. Under a hybrid system, firms would be allowed to bypass certification and have their goods taxed according to product specific baselines; the resulting taxes would be independent of how or where a good was produced. Moreover, a system of baselines would reduce implementation costs, allowing foreign firms with small market shares to compete without incurring the sizable fixed costs associated with footprint certification. Provided they are set according to objectively constructed formulae, baselines would thus assuage many concerns about disguised protectionism. A dual-instrument approach---whereby *all* goods within a product-class face identical taxes while consumers of goods with small certified CFs would receive consumption subsidies---would go even further to repel claims of a GATT Article III violations since these subsidies would fall under the ASCM rather than the GATT.

In summary, we believe that carbon footprint taxes could serve as unilateral carbon policies that would allow governments to undertake meaningful unilateral action on climate change without sacrificing the competitiveness of domestic firms and without violating the rules of international trade law.