

Carbon Border Measures, Environmental Effectiveness and WTO Law Compatibility: Is There a Way Forward for the Steel and Aluminium Climate Club?

With its narrow focus on price-based policies and ‘explicit’ carbon prices, the EU carbon border adjustment mechanism (‘CBAM’) aims to prevent carbon leakage by ensuring that imported products ‘bear’ the same exact economic costs ‘borne’ by EU products. The proposed US border carbon adjustment (‘BCA’) and the recent proposal for a global steel and aluminium arrangement (‘GSAA’), by contrast, reflect a broader focus on environmental equivalence and recourse to punitive or quasi-punitive remedies. All recently proposed carbon border measures suffer from specific limitations. Further, albeit to a different extent, they are all associated with problematic aspects in terms of WTO law compatibility. This research note enquires whether the GSAA could be fine-tuned at the regulatory design stage in such a way as to provide an environmentally effective and WTO law compatible way forward. The analysis illustrates that recourse to an installation-based approach, emission limit values and product standards would achieve these goals. Nonetheless, the implementation of this ambitious strategy would be fraught with political obstacles.

1. The Broader Picture: Climate Clubs and Unilateral Carbon Border Measures

The recent meeting of the parties at the Glasgow COP26 has shed further light on the troubled nature of climate change negotiations in multilateral fora.¹ As testified by the COP26, the shortcomings of the Paris Agreement’s bottom-up system of nationally determined contributions (‘NDCs’) can hardly be remedied at the multilateral level.² In this very difficult context, and at a time when the impacts of climate change may soon become irreversible, new strategies are being pioneered and carbon border measures have been proposed by different parties.

Climate change mitigation and economic aspects are structurally intertwined in the regulatory design of this new generation of measures. Climate change mitigation commitments are implemented through the enactment of different regulatory frameworks, cutting across areas such as greenhouse gas (‘GHG’) emission limits in specific sectors, planning law, governance of renewables, and energy efficiency standards. Further, a different mix of price-based, non-price-based and partial-price-based policies is employed in different jurisdictions.³ Regardless of the regulatory approach followed in different countries, the absence of stringent climate change mitigation standards reduces economic (production) costs for firms; in carbon-intensive sectors, this results in the use of more carbon-intensive (and cheaper) technologies and in the production of more carbon-intensive (and cheaper) goods.

This has three implications. First, transnational variations in the stringency of climate change mitigation commitments have significant effects on the competitive opportunities of products originating from different countries. Second, these transnational variations can result in carbon leakage, namely the relocation of firms in jurisdictions with more lenient environmental policies.⁴

¹ For more information and the text of the Glasgow Climate Pact, see <<https://ukcop26.org/>> and <<https://unfccc.int/documents/310475>> (accessed March 2022).

² Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No 16-1104, Articles 2(1)(a), 3 and 4.

³ For an overview, see E Campbell and W Pizer, *Border Carbon Adjustments Without Full (or Any) Carbon Pricing*, Resources for the Future (2021).

⁴ European Commission, *Commission Staff Working Document, Impact Assessment Report Accompanying the Document Proposal for a Regulation Establishing a Carbon Border Adjustment Mechanism*, SWD(2021) 643 final, part 2/2, Annex 11.

This may materialise when environmental standards vary to such an extent as to put ‘greener’ and more expensive domestic products at a considerable disadvantage, in the light of trade intensity.⁵ Third, excess capacity driven by the use of polluting technologies contributes to significant GHG emissions at the transnational level and hinders the development and entrenchment of ‘greener’ technologies.

To a variable extent, all the recently proposed carbon border measures seek to address these challenges. The European Commission was the first to enact a formal proposal for the establishment of a carbon border adjustment mechanism (‘CBAM’).⁶ Only a few days later, the Coons-Peters Bill was introduced in the US Senate; this envisages the creation of a border carbon adjustment (‘BCA’).⁷ These unilateral carbon border measures aim to avoid potential carbon leakage by redressing distortions of competition between domestic and imported products in carbon-intensive sectors. In October 2021, a different and as of yet largely under-developed proposal for the creation of a global steel and aluminium arrangement (‘GSAA’) was put forward by the US and the EU.⁸ Unlike the CBAM and the BCA, this proposal is directly inspired by the theorisation of climate clubs⁹ and has a distinctive plurilateral and sector-specific focus.¹⁰ This proposal has triggered a lively debate in the trade law community.

This research note enquires whether the GSAA could be fine-tuned at the regulatory design stage in such a way as to provide an effective and WTO law compatible way forward to promote ‘green’ technologies in members and non-members of the climate club. The examination is set in the broader context of an analysis of the regulatory design of carbon border measures. The second section provides a concise overview of the GSAA, the US proposal for a BCA, and the EU proposed CBAM. The third section explores the thorny question of the compatibility with WTO law of these measures. The final section reflects on the possibility to design an environmentally effective and WTO law compatible climate club, combining the broader environmental regulatory rationale of the GSAA and BCA and the product-based focus typical of the CBAM arrangements. It puts forward a specific proposal, advocating recourse to an installation-based approach and product standards. This environmentally ambitious strategy could provide a solution in the context of the GSAA negotiations; nonetheless, its implementation would be fraught with political obstacles.

2. Regulatory Design: the GSAA, the BCA and the CBAM

On the 31st of October 2021, the EU and the US sealed the renewal of the transatlantic alliance by agreeing to suspend the disputes that they had initiated against each other after the enactment of the

⁵ Ibid.

⁶ European Commission, *Proposal for a Regulation of the European Parliament and of the Council Establishing a Carbon Border Adjustment Mechanism*, COM(2021) 564 Final.

⁷ FAIR Transition and Competition Act, S. GAI21718 59G, 117th Cong. (2021).

⁸ *Steel & Aluminium, EU-US Joint Statement of 31 October 2021*, available at <https://trade.ec.europa.eu/doclib/docs/2021/october/tradoc_159890.pdf> (accessed March 2022).

⁹ See inter al W Nordhaus, ‘Climate Clubs: Overcoming Freeriding in International Climate Policy’ (2015) 105(4) *American Economic Review* 1339.

¹⁰ A focus on steel and aluminium products is a central aspect of all the carbon border measures under analysis. The steel industry, in particular, is the most carbon-intensive and trade-exposed sector of the economy: see *Impact Assessment Report*, *supra* note 4.

famous US Section 232 measures.¹¹ On the same date, they published a Joint Statement addressing transatlantic cooperation on trade remedies and customs¹² and proposing new ‘global steel and aluminium arrangements to restore market-oriented conditions and address carbon intensity’.¹³ The EU and the US have resolved to negotiate and reach an agreement over the next two years.

The Statement draws an express connection between two overlapping yet very different goals: tackling global non-market excess capacity in the steel and aluminium sectors, and reducing their carbon intensity. This specific framing is influenced by an acknowledgment of the entrenched Chinese practice to heavily subsidise its industry without regard to the relevant methods of production; the People’s Republic of China is the first producer of steel at the global level, and (highly polluting) blast furnaces are the prevailing mode of production in Chinese steel mills.¹⁴ Undeniably, excess capacity driven by this form of subsidisation ‘generates unnecessary [GHG] emissions, deflates prices of high emission products, and hinders the development and scaling up of competitive solutions for lower emissions production’.¹⁵ Nonetheless, in conceptual terms, there is no straight forward connection between the question of subsidisation and the issue of the prevailing modes of production in specific jurisdictions. States may choose to subsidise ‘green’ technologies. Conversely, polluting and cheaper modes of production may be entrenched in specific jurisdictions and contribute to excess capacity, despite the absence of any form of subsidisation.

The problematic association between decarbonisation and the attempt to tackle non-market excess capacity has been defined as the ‘poison pill that will doom the enterprise’.¹⁶ The ‘non-market excess capacity’ component is bound to discourage countries that heavily subsidise their steel and aluminium industries from joining the GSAA, unless the club arrangements take a very permissive approach to ‘green’ subsidies.¹⁷ On these grounds, the relationship between the two components of the arrangement should be thoroughly clarified;¹⁸ this will be crucial to ensure that the ‘unfair trade’ element does not jeopardise the decarbonisation goals of the club. The present analysis will be confined to climate change mitigation aspects.

The Joint Statement lays out the blueprint for the creation of a climate club among ‘like-minded economies’.¹⁹ According to the Statement, the members will commit to enact domestic policies supporting lowering carbon intensity across all modes of production, refrain from non-market practices that contribute to carbon-intensive production, consult on government investment in

¹¹ *Joint Statement*, *supra* note 8, section 3.

¹² *Ibid*, section 1.

¹³ *Ibid*, section 2.

¹⁴ See TN Tucker and T Meyer, *A Green Steel Deal: Towards a Pro-Jobs, Pro-Climate Cooperation on Carbon Border Measures*, Roosevelt Institute (2021).

¹⁵ *Joint Statement*, section 2.

¹⁶ S Lester, ‘Prospects for the Green Steel Deal’, *International Economic Law and Policy Blog*, March 2022; see also S Lester, ‘How Exactly Would The US-EU Section 232 Deal Affect Carbon Emissions?’, *International Economic Law and Policy Blog*, November 2021.

¹⁷ Lester, ‘Prospects for the Green Steel Deal’; and Lester, ‘How Exactly Would The US-EU Section 232 Deal Affect Carbon Emissions?’, *supra* note 16.

¹⁸ J Hillman and A Tippet, ‘A New Transatlantic Agreement Could Hold the Key to Green Steel and Aluminium’, *Council on Foreign Relations Blog*, November 2021.

¹⁹ Section 2. The US-Japan and US-UK Joint Statements, however, follow a much vaguer approach; both Statements provide that the states ‘will confer on entering into discussions on global steel and aluminium arrangements to address both global non-market excess capacity as well as the carbon-intensity of the steel and aluminium industries’. See *US-Japan Joint Statement, February 7, 2022*, available at <<https://www.commerce.gov/sites/default/files/2022-02/US-Japan-Joint-Statement.pdf>> and *Steel and Aluminium, US-UK Joint Statement, March 22, 2022*, available at <<https://www.commerce.gov/sites/default/files/2022-03/UK232-Joint-Statement.pdf>> (accessed March 2022).

decarbonisation, and screen inward investment from non-market oriented actors.²⁰ Further, the members will commit to restrict market access for non-participants that do not meet standards for low-carbon intensity.²¹ This has been consistently interpreted as a reference to the prospective imposition of punitive tariffs or quotas on steel and aluminium products originating from countries that are not members of the club.²² The express reference to restricting market access for ‘non-participants’ suggests that the arrangements are likely to focus on states, rather than products and product standards.

This examination triggers two considerations on the regulatory design envisaged for the GSAA. First, the proposed arrangements are based on the notion of *environmental equivalence* between *states*. The members of the club are expected to take on environmental commitments and adopt policies supporting low-carbon intensity. Second, the applicable *remedies* are *punitive* in nature.

The determination of specific criteria to establish environmental equivalence between the members of the club is likely to be very problematic. Will the GSAA involve policy commitments, such as the promotion of specific ‘green’ technologies or GHG emission control techniques? Will it involve GHG emission reduction targets for the club members’ steel and aluminium sectors, and how specific and ambitious will these targets be? Will the relevant commitments or targets be short-term or long-term, and will members agree on a roadmap? In the absence of *uniform* and *stringent* decarbonisation commitments for the club members, the GSAA will be regarded as environmentally ineffective and will attract considerable criticism. In a similar vein, the recent proposal for a green steel deal (‘GSD’) club, involving the application of punitive tariffs against non-members,²³ has come under challenge as a form of green protectionism. The flexible regulatory arrangements of the GSD, combined with the application of high punitive tariffs, have been held to result in a situation where everyone would pay for the decarbonisation of the (US) steel sector, except for the (US) steel sector.²⁴

Turning to the question of the applicable remedies, the point has been made that perpetuating a ‘Trump Era-like’ system of tariffs would affect the environmental credibility of the climate club; the effectiveness of this kind of remedy in the present high tariff environment has also been called into question.²⁵ Further, recourse to punitive tariffs or quotas begs the question how these would be determined and triggers a number of considerations.²⁶ A state-based focus on membership to the club

²⁰ Ibid, points (iii) to (vi).

²¹ Ibid, point (ii).

²² Lester, ‘How Exactly Would The US-EU Section 232 Deal Affect Carbon Emissions?’, *supra* note 16; T Meyer and TN Tucker, ‘Response from Tim Meyer and Todd Tucker: How Exactly Would The US-EU Section 232 Deal Affect Carbon Emissions?’, *International Economic Law and Policy Blog*, November 2021; Hillman and Tippet, *supra* note 18; D Kleimann, ‘The Worst of Two Worlds: Why the US Blueprint for a Transatlantic Climate Club Authored by Todd Tucker and Tim Meyer Must be Binned Immediately’, *International Economic Law and Policy Blog*, December 2021.

²³ Tucker and Meyer, *supra* note 14. The GSD policy proposal involves the application of a common external tariff on steel products originating from non-members of the club. Members of the club would take on decarbonisation commitments, while maintaining full margins of manoeuvre as regards recourse to a different mix of (price-based and non-price-based) policy tools.

²⁴ Kleimann, *supra* note 22.

²⁵ Lester, ‘How Exactly Would The US-EU Section 232 Deal Affect Carbon Emissions?’, *supra* note 16; and S Lester, ‘More on the US-EU Section 232 Deal Affecting Carbon Emissions: A Response to The Response by Tim and Todd’, *International Economic Law and Policy Blog*, November 2021. These points have been made in the context of an analysis of the proposal for a GSD.

²⁶ Different options might be taken into consideration during the GSAA negotiations. Punitive tariffs or quotas could be calibrated to the level of ambition of the decarbonisation policies of non-members, or their prevailing modes of production. Alternatively, punitive tariffs or quotas could be calibrated to the GHG emissions embedded in products

and the application of punitive tariffs or quotas against *states* fails to capture the carbon intensity of specific imported products. ‘Green’ and more polluting products originating from non-members would be treated in the same exact way; this fails to create any incentives for firms in non-member countries to invest in ‘greener’ technologies. Even assuming that the system accounts for the *GHG emissions* embedded in *specific imported products* or *their route of production*, reliance on punitive tariffs or quotas would be problematic. Importantly, recourse to this category of remedies affects the even-handed application of the GSAA regulatory arrangements. *Members* of the club will likely take on flexible and long-term decarbonisation commitments relating to their steel and aluminium *sectors*. In a completely different vein, under the scenario envisaged above, *all* steel and aluminium *products* manufactured under a specific route of production or *all* steel and aluminium *products* with specific levels of embedded GHG emissions would be the object of punitive tariffs or quotas, if they originate from *non-members* of the club.²⁷

Overall, as this concise overview has endeavoured to demonstrate, the proposal for a GSAA is associated with a number of problems. In terms of regulatory design, the GSAA shares some common features with the proposed BCA. First, the BCA proposal is also informed by a focus on *environmental equivalence*. The Bill provides for the levying of a ‘fee’ on a number of imported products originating from countries whose environmental commitments are regarded as non-equivalent to the US ones; thus, the focus is first and foremost on *states* and their environmental policies.²⁸

Second, while drawing on a hybrid regulatory approach, the BCA also applies as a *quasi-punitive* import charge. The ‘fee’ levied on the imported products is calculated by multiplying the domestic ‘implicit’ (i.e. artificially monetised) cost borne by US firms to comply with all relevant environmental regulations²⁹ by a default value, which is meant to capture the GHG emissions embedded in the imported products.³⁰ A petition procedure is available for importers to demonstrate that the emissions embedded in their products are lower than presumed.³¹ In terms of regulatory design, this reveals a focus on the economic costs borne by US producers and an attempt to redress the distortions of competition ensuing from divergent climate change mitigation standards. However, there are at least a couple of elements suggesting that the BCA would operate as a quasi-punitive measure. To begin with, the ‘fee’ would not apply to each and every product on the basis of its GHG emissions and production costs; products originating from countries whose environmental commitments are considered equivalent to the US ones would be exempt, regardless of their embedded emissions, production costs and price on the US market. Further, least developed countries (‘LDCs’) would be exempted.³² This is also irreconcilable with a purely economic rationale and with a focus on distortions of competition.

originating from non-members, or be only addressed to specific categories of products with high levels of embedded emissions. Other variations along this spectrum are likely to be taken into consideration.

²⁷ For more details, see *infra* section 3.

²⁸ Section 9904(b)(2)(B). An additional condition is that the relevant countries must not impose any carbon border measures on US products. For a detailed analysis, see GC Leonelli, ‘Practical Obstacles and Structural Legal Constraints in the Adoption of ‘Defensive’ Policies: Comparing the EU Carbon Border Adjustment Mechanism and the US Proposal for a Border Carbon Adjustment’ (forthcoming 2022) *Legal Studies*.

²⁹ Section 9902.

³⁰ Section 9904(a).

³¹ Section 9905(c).

³² Section 9904(b)(2)(A).

Like the GSAA, the BCA proposal is associated with a number of problems. To begin with, measuring the environmental equivalence of different national combinations of price-based, non-price-based and partial-price-based climate change mitigation policies is an impossible endeavour. This calls into question the consistency and methodological robustness of the BCA arrangements. In a similar vein, monetising the ‘implicit’ carbon prices existing in different jurisdictions would pose several methodological hurdles.³³ As regards the quasi-punitive remedies, the application of the BCA to products originating from countries whose policies are not regarded as ambitious as the US ones and the corresponding exemption for products originating from ‘virtuous’ countries fails to capture the carbon intensity of the products at issue. Both ‘green’ and highly polluting products originating from ‘virtuous’ countries are exempt; as already seen with the GSAA, this fails to create incentives for firms to invest in ‘greener’ modes of production.

The last step of the analysis involves an examination of the EU CBAM; this is informed by a very different regulatory design. The CBAM reflects a direct attempt to redress the distortions of competition between (generally ‘greener’ and more expensive) EU products and (on average more polluting and cheaper) imported products. Under the proposed scheme, importers will be required to purchase and surrender a number of CBAM certificates covering all verified GHG emissions embedded in their products.³⁴ The price of the CBAM certificates will be linked to the ‘explicit’ (i.e. expressly monetised) auctioning price of the EU Emission Trading System (‘ETS’) allowances, purchased and surrendered by EU firms, and will be further adjusted to account for the distribution of any free allowances.³⁵ On these grounds, the CBAM performs the function of an *economic remedy*; each and every imported product has to ‘bear’ the *same exact economic costs* ‘borne’ by EU firms due to the operation of the ETS. Symmetrically, the CBAM proposal is based on the notion of *economic equivalence* between *products*. The only applicable exemptions relate to any ‘explicit’ carbon price derived from the application of price-based policies in the country of origin of the product and already paid in that jurisdiction.³⁶ Any foreign carbon tax and any foreign ‘explicit’ carbon price paid due to the operation of emission trading schemes will be taken into consideration for the purposes of determining the final number of CBAM certificates, and waived. Symmetrically, products originating from countries whose emission trading schemes are fully linked to the EU ETS are exempted.³⁷ By contrast, non-price-based GHG emission reduction policies adopted by different states and the ‘implicit’ carbon prices borne by market actors in these jurisdictions are not taken into consideration.

From an environmental integrity perspective, the narrow economic rationale of the CBAM and its straightforward focus on ‘explicit’ carbon prices and distortions of competition suffer from several limitations. First, the CBAM’s reliance on the criterion of economic equivalence fails to capture the stringency and environmental effectiveness of non-price-based policies in force in different jurisdictions. In practical terms this means that, if a country has adopted non-price-based policies that are as environmentally effective as the EU standards, the application of the CBAM will simply ensure that the products originating from this country ‘pay’ the ‘explicit’ carbon price associated with the operation of the ETS. Under this scenario, however, the CBAM would not serve

³³ For an overview of relevant methodological obstacles, see Campbell and Pizer, *supra* note 3.

³⁴ See Articles 3(15) and (20), 4, 5, 6, 7(2) and 8 in the European Commission’s proposed Regulation, *supra* note 6.

³⁵ Articles 21(1) and 31.

³⁶ Article 3(23). For a recent detailed analysis of the CBAM proposal, see A Cosbey, O Sartor and A Shawkat, *Getting the Transition to CBAM Right: Finding Pragmatic Solutions to Key Implementation Questions*, Agora (2022).

³⁷ Article 2(5).

environmental purposes; carbon leakage would not materialise in a country whose GHG emission reduction policies are as stringent as the EU ones.³⁸

Turning to the question of economic remedies, the CBAM may indirectly incentivise private investments in ‘greener’ production methods and indirectly encourage third countries to adopt more stringent environmental standards. Nonetheless, this can hardly be defined as an environmentally ambitious strategy. Comparing the CBAM’s requirement for all imported products to ‘bear’ the same economic costs ‘borne’ by EU products with a ban on products whose embedded GHG emissions are deemed too high to be acceptable is sufficient to shed light on the reductionist approach of the CBAM’s economic rationale. Indeed, the EU controversy surrounding the prospective phasing-out of free ETS allowances testifies to the narrow economic rationale of the CBAM. The regulatory arrangements that are currently in place seek to prevent carbon leakage by allocating a number of free allowances to EU firms operating in the sectors that are most exposed to leakage. From an environmental protection perspective, the continuation of the free allowances system is difficult to reconcile with the establishment of the CBAM; the two pursue the same goal. Further, it directly undermines the price signal of the ETS (and CBAM). From an economic perspective, however, the continuation of the free allowances system helps redress the distortions of competition that will materialise on foreign markets between exported EU products, on the one hand, and products originating from third countries, on the other.

This concludes the examination of the regulatory design of recently proposed carbon border measures. It is against the backdrop of this analysis that the next section turns to the question of WTO law compatibility.

3. From Regulatory Design to WTO Law Compatibility

It is fair to suggest that neither the CBAM nor the BCA or the GSAA would be deemed to be in compliance with the substantive obligations enshrined in the GATT 1994. The CBAM is likely to qualify as an adjustable regulation under Article III:4 GATT. It lays out a regulatory requirement for importers to offset the GHG emissions embedded in their products, via the purchase of CBAM certificates, and also applies to the ‘like’ domestic products; the domestic ‘counterpart’ of the CBAM scheme is the EU ETS.³⁹ Under the prevailing disparate impact test, however, the CBAM is highly likely to be in breach of the National Treatment obligations.

EU products are on average ‘greener’ and more expensive than imported products because the GHG emission reduction policies in force at EU level are generally more ambitious than the ones in force in other jurisdictions. Symmetrically, imported products originating from countries with more

³⁸ For an analysis of the same point from a product-based perspective, i.e. with reference to the CBAM’s failure to take the ‘implicit’ carbon prices ‘paid’ by imported products into account, see *infra* section 3. For a detailed analysis of the CBAM, see Leonelli, *supra* note 28.

³⁹ On the conditions for the application of Article III:4, see Appellate Body Report, *Korea – Measures Affecting Imports of Fresh, Chilled and Frozen Beef*, WT/DS161/AB/R, WT/DS169/AB/R, adopted 10 January 2001, para 133. The measures applied to domestic and imported products need not be identical: see Panel Report, *European Communities – Measures Affecting Asbestos and Asbestos-Containing Products*, WT/DS135/R, adopted 5 April 2001, paras 8.94 ff. For different analyses and conclusions regarding the CBAM, see J Bacchus, *Legal Issues with the European Carbon Border Adjustment Mechanism*, Cato Institute Briefing Paper no. 125 (2021); and I Venzke and G Vidigal ‘Are Trade Measures to Tackle the Climate Crisis the End of Differentiated Responsibilities? The Case of the EU CBAM’, *Amsterdam Law School Research Paper 2022-02*.

lenient policies are on average both more polluting and cheaper than EU products. By implication, imported (generally more polluting) products will on average ‘pay’ more under the CBAM than EU (generally ‘greener’) products ‘pay’ under the EU ETS; while the ‘explicit’ carbon price applied via the CBAM is the same ‘borne’ by EU products under the ETS, the GHG emissions embedded in imported products will generally be higher than the ones embedded in EU products. The CBAM would then afford ‘less favourable treatment’ to imported products than the one afforded to the ‘like’ domestic products.⁴⁰ Further, the provision that any ‘explicit’ carbon price already paid in the country of origin of a product shall be waived violates the MFN principle; the reason is that this grants an advantage to countries that have adopted price-based policies, as opposed to countries that have had recourse to non-price-based standards. The blanket exemption of products originating from countries whose emission trading schemes are fully linked to the EU ETS is also a clear violation of the MFN principle.⁴¹

An analysis of the BCA and GSAA leads to similar conclusions. Even assuming that carbon taxes may qualify as adjustable product taxes,⁴² the BCA would not qualify for a border tax adjustment under Article II:2(a) GATT. The reason is that the ‘fee’ provided for in the Coons-Peters Bill has no equivalent in the internal taxation system; the US BCA is not levied in the form of an ‘explicit’ carbon price on the ‘like’ domestic products, and simply results from the calculation of the (presumed) ‘implicit’ carbon price paid by US firms.⁴³ Nor could the proposed BCA import charge possibly qualify as an adjustable regulation. Finally, the GSAA proposed arrangements and whatever measures may be employed to restrict market access for non-participants are bound to be in breach of the MFN principle, Article II GATT, and/or Article XI GATT.

This triggers the question whether these measures could be justified under Article XX GATT and the Chapeau therein. Sub-paragraph (g) on measures relating to the conservation of exhaustible natural resources and made effective in conjunction with restrictions on domestic production and consumption would be presumably invoked as a provisional justification. This does not pose particular problems, in the light of the broad interpretation of this sub-paragraph provided by the dispute settlement organs.⁴⁴ Compliance with the Chapeau, however, would prove much more challenging.

⁴⁰ Bacchus has laid emphasis on the incompatibility of the free allowances system with Article III:4 – see *supra* note 39. Hufbauer has highlighted that CBAM certificates are not tradable, unlike ETS allowances; this may also result in a breach of Article III:4. See GC Hufbauer et al, *Can EU Carbon Border Adjustment Measures Propel WTO Climate Talks?*, PIEE Policy Brief (2021).

⁴¹ In so far as it indirectly places products originating from ‘environmentally virtuous’ countries in an advantageous situation, the CBAM may also result in a *de facto* violation of the MFN principle; see Bacchus, *supra* note 39.

⁴² The question is still controversial in the literature; for different views, see J Pauwelyn, *US Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law*, Duke University Working Paper (2007); R Howse, ‘Non-Tariff Barriers and Climate Policy’ in C Herrmann, M Krajevski and JP Terhecté (eds), *European Yearbook of International Economic Law* (Springer, 2015); G Marceau, ‘The Interface between Trade Rules and Climate Change Actions’ in DY Park (ed), *Legal Issues on Climate Change and International Trade Law* (Springer 2016); JP Trachtman, *WTO Law Constraints on Border Tax Adjustment and Tax Credit Mechanisms to Reduce the Competitive Effects of Carbon Taxes*, Resources for the Future (2016).

⁴³ Article II:2(a) stipulates that the relevant charge shall be equivalent to an internal tax imposed consistently with the provisions of Article III:2 GATT.

⁴⁴ On the qualification of ‘clean air’ as an exhaustible resource, the requirement of a ‘close and genuine relationship of ends and means’, and even-handedness, see Panel Report, *United States – Standards for Reformulated and Conventional Gasoline*, WT/DS2/R, adopted 20 May 1996, paras 6.36-6.38; and Appellate Body Report, *United States – Standards for Reformulated and Conventional Gasoline*, WT/DS2/AB/R, adopted 20 May 1996, pp. 20 and 21.

Recourse to the economic yardstick of ‘explicit’ carbon prices under the CBAM is neither arbitrary nor unfair or untransparent. The product-based focus on the verified GHG emissions embedded in each and every good covered by the scheme is also fair and non-discriminatory.⁴⁵ The CBAM’s failure to take into account and waive the ‘implicit’ carbon price ‘paid’ by products in countries that have adopted non-price-based policies, however, is problematic. Admittedly, this choice has been driven by the practical difficulties associated with monetising ‘implicit’ costs.⁴⁶ Further, it is worth mentioning that the stringency of non-price-based climate change mitigation standards in force in different jurisdictions will be reflected in the final amount of GHG emissions embedded in a product. In this sense, the CBAM’s focus on the GHG emissions embedded in each and every product partially captures this dimension and partially accounts for foreign non-price-based policies.⁴⁷ Nonetheless, this is insufficient to exclude a violation of the Chapeau requirements.

In countries where maximum emission standards or technical and performance-based standards are in place, the marginal abatement costs incurred by producers to comply with these non-price-based standards could be equal to or higher than the ‘explicit’ carbon price paid by equally ‘green’ products under the ETS; the more stringent the relevant (non-price-based) regulatory standards are, the more likely this situation will be. From this perspective, by failing to account for ‘implicit’ carbon prices, the CBAM fails to treat ‘environmentally equivalent’ products in the same way and places goods originating from countries that have adopted non-price-based policies at a disadvantage.⁴⁸ The same exact point can be raised from the different, state-based perspective of arbitrary and unjustifiable discrimination between countries where the same environmental conditions prevail. As explained in the second section, the CBAM’s focus on economic equivalence fails to capture the stringency and environmental effectiveness of non-price-based policies in force in different jurisdictions. Products originating from countries whose non-price-based standards are as ambitious as the EU price-based ones may then be subject to the CBAM, despite the absence of any risks of carbon leakage in these jurisdictions.

Finally, indirect coercive effects may come into play in so far as the revenues of the CBAM are collected and used in the EU.⁴⁹ This could indirectly push third countries to adopt price-based mechanisms. First, establishing an ‘explicit’ carbon price would lead to an automatic rebate under the CBAM.⁵⁰ Second, it would also enable the third country to levy the relevant ‘explicit’ carbon price internally and make use of the relevant revenues, rather than have it levied in the EU.

Overall, the CBAM’s regulatory design and its application are not unproblematic from a WTO law perspective. Nonetheless, it is fair to acknowledge that the BCA and the GSAA are more problematic. The focus on the environmental equivalence of US and foreign climate change mitigation commitments, as a precondition for the application of the US BCA, is highly likely to be

⁴⁵ The CBAM’s reference to national average baselines or to the emissions of the worst performing EU installation, in the absence of verification, is more difficult to justify.

⁴⁶ *Impact Assessment Report*, *supra* note 4, part 1/2, 26.

⁴⁷ I.e., products originating from countries with *non-effective price-based* policies are still likely to be more polluting and pay ‘more’ than products originating from countries with *effective non-price-based* policies.

⁴⁸ For an analysis of this point from a product-based perspective, see T Meyer and TN Tucker, ‘A Pragmatic Approach to Carbon Border Measures’ (2021) 20 *World Trade Review*. This could result in discrimination against products originating from countries that have adopted non-price-based policies vis-à-vis *EU products*, and vis-à-vis *imported products originating from countries that have adopted price-based policies*.

⁴⁹ On the question of coercive effects, see Appellate Body Report, *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R, adopted 6 November 1998, paras 161 and 164.

⁵⁰ Meyer and Tucker, *supra* note 48.

challenged as arbitrary and untransparent.⁵¹ As already mentioned, a consistent assessment of the equivalence of different climate change mitigation policies in different national contexts is impossible. As regards the environmental rationale and fair application of the measure, from a product-based perspective, the BCA treats equally polluting or equally ‘green’ products originating from countries with more or less stringent environmental policies in a different way. For instance, ‘green’ products originating from countries with lenient climate change mitigation policies would be subject to the BCA; ‘green’ (or even polluting) products from countries with stringent standards would not. This is irreconcilable with the Chapeau requirements.⁵² The blanket exclusion of LDCs is also problematic, as it undermines the environmental goals of the measure. Excluding specific countries from the scope of application of carbon border measures directly promotes carbon leakage in these jurisdictions.⁵³

The over-complex determination of the domestic environmental cost incurred by US firms is also highly likely to be challenged as a form of ‘arbitrary discrimination’. Further, the BCA proposal suffers from the same limitations of the CBAM in respect of ‘implicit’ carbon prices. If a third country’s policies are not recognised as equivalent to the US ones, a product will be subject to the proposed import charge. The imposition of the full (‘implicit’) US ‘domestic environmental cost’, however, fails to account for the ‘implicit’ (albeit lower) carbon price existing in jurisdictions with non-equivalent environmental commitments. Finally, the use of statutory baselines to determine the GHG emissions embedded in a product is also likely to come under challenge.⁵⁴

As this concise overview has demonstrated, the BCA does not score well from a WTO law compatibility perspective. The regulatory design of the GSAA does not score any better. As explained above, the Joint Statement expressly refers to restricting market access for ‘non-participants’ to the club. This suggests that a ‘green’ and a polluting product originating from a non-member of the climate club would be the object of the same treatment. In a similar way, a ‘green’ product originating from a non-member of the climate club would be the object of punitive tariffs or quotas; an equally ‘green’ or even a polluting product originating from a member of the club, however, would not. This is arbitrary and incompatible with the Chapeau requirements.⁵⁵

Even if we assume that the treatment of products originating from non-members would be different on the basis of their embedded GHG emissions or their route of production, recourse to punitive tariffs or quotas would still affect the even-handed application of the arrangements vis-à-vis members and non-members of the club. Members will presumably take on commitments related to the decarbonisation of their steel and aluminium sectors. This, however, would not prevent producers within the club from using specific modes of production; nor would it affect trade in steel or aluminium products with specific embedded GHG emissions, as long as they originate from within the club. By contrast, ‘environmentally equivalent’ steel and aluminium products with the same

⁵¹ By analogy, see Appellate Body Report, *US – Shrimp*, paras 180 and 181.

⁵² By analogy, see the findings in Appellate Body Report, *US – Shrimp*, para 165 (on the application of the US ban to shrimp harvested with turtle excluder devices originating from countries that the US had not certified); and Appellate Body Report, *European Communities – Measures Prohibiting the Importation and Marketing of Seal Products*, WT/DS400/AB/R, WT/DS401/AB/R, adopted 18 June 2014, paras 5.324 ff (on the possibility for non-indigenous seal products to illegitimately qualify for the indigenous community exception).

⁵³ By analogy, see Appellate Body Report, *Brazil – Measures Affecting Imports of Retreaded Tyres*, WT/DS332/AB/R, adopted 17 December 2007, paras 226 to 232 and para 242 (on the effects of the MERCOSUR exception).

⁵⁴ By analogy, see Appellate Body Report, *US – Gasoline*, p. 27. While a petition procedure is provided for, it may be considered insufficient.

⁵⁵ See *supra* note 52.

embedded GHG emissions would be the object of punitive tariffs or quotas, if they originate from non-members of the club. This is discriminatory and impossible to reconcile with the Chapeau requirements.⁵⁶

Turning to the question of discrimination between countries where the same (environmental) conditions prevail, further problematic aspects come into play. Countries characterised by the same prevailing modes of production in the steel and aluminium sectors may take different decisions in respect of joining the climate club. This could easily lead to a situation where countries with the same prevailing (production or environmental) conditions are discriminated against, on the mere grounds of membership to the climate club and all associated (prospective) commitments. If all non-members of the club were to be the object of the same treatment, the GSAA may also discriminate against countries where different (production or environmental) conditions prevail.

Finally, a finding of coercion cannot be categorically excluded. A non-member may point to the effectiveness of its climate change mitigation commitments and policies in different sectors, raising the question of the coercive effects of the club's punitive tariffs and quotas. From this perspective, the club's sectoral focus on steel and aluminium could even be challenged as a disguised restriction on international trade.⁵⁷ The requirement to negotiate in good faith⁵⁸ with all WTO Members⁵⁹ and take the (relevant) conditions prevailing in different countries into account⁶⁰ will also weigh heavily on the club's members. As this section has illustrated, the CBAM, BCA and GSAA are all problematic from a WTO law perspective. Are carbon border measures doomed?

4. Environmental Effectiveness and WTO Law Compatibility. Combining an Installation-Based Approach and Product Standards under the GSAA?

From an environmental integrity perspective, as illustrated in the second section, the narrow economic rationale of the CBAM suffers from several limitations. This militates in favour of a focus on environmental equivalence and the application of punitive remedies. The second and third sections have also pointed to the problems associated with the GSAA's and BCA's state-based perspective; on these grounds, carbon border measures should rather draw on a product-based approach. Finally, as highlighted throughout the analysis, the relevant arrangements should be effective in environmental terms and WTO law compatible. Effectiveness and WTO law compatibility will reinforce the environmental legitimacy of the regulatory arrangements, facilitate political agreement, and ensure that carbon border measures are not regarded as a form of green protectionism.

Is there any way forward to design *environmentally effective* and *WTO law compatible* carbon border measures? This final section addresses this point; it focuses on the GSAA and enquires whether its regulatory arrangements could be fine-tuned in such a way as to provide for an effective

⁵⁶ See also *supra* section 2. In theory, questions surrounding the even-handed application of the GSAA regulatory arrangements may fall for analysis under sub-paragraph (g) of Article XX GATT. However, it is fair to suggest that they are more likely to come under scrutiny as part of the practical application of the GSAA, i.e. under the Chapeau requirements.

⁵⁷ On this point see also Lester, 'Prospects for the Green Steel Deal', *supra* note 16.

⁵⁸ Appellate Body Report, *US – Shrimp*, para 166; Appellate Body Report, *United States – Import Prohibition on Certain Shrimp and Shrimp Products – Recourse to Article 21.5 of the DSU by Malaysia*, WT/DS58/AB/RW, adopted 21 November 2001, paras 123 and 124. As confirmed by the AB, there is no duty for the Parties to conclude an agreement.

⁵⁹ Appellate Body Report, *US – Shrimp*, para 172; Appellate Body Report, *US – Shrimp 21.5*, para 122.

⁶⁰ Appellate Body Report, *US – Shrimp*, paras 164 and 166.

and WTO law compliant climate club. It argues that the adoption of a *uniform installation-based* approach within the club and recourse to *product standards* provide a potential way forward.

Standards based on Best Available Techniques ('BATs'),⁶¹ also known as Best Available Control Technologies ('BACTs'),⁶² are employed in the regulation of industrial emissions of hazardous pollutants. The process generally involves the comparison of alternative pollution control technologies, the elimination of technologies which would either be technically unfeasible or disproportionately costly in the case at hand, the determination of the emissions associated with recourse to the most effective 'remaining' technologies, and the granting of a permit subject to compliance with the relevant industrial emission limits.⁶³ While traditionally applied to a handful of air pollutants, this process has also been employed to control GHG emissions; the US Environmental Protection Agency ('EPA') has pioneered this approach, despite a partial U-turn in 2014.⁶⁴ 'Hardening' the BATs/BACTs process and embracing a *top-down, installation-based* approach could serve the purpose of laying out *uniform* and *stringent* GHG emission limit standards to be applied throughout the climate club.

To begin with, this would presuppose the identification of different applicable GHG emission-reducing technologies in the steel and aluminium sectors and in different routes of production. The two main routes for steel production, for instance, are blast furnaces and (less polluting) electric arc furnaces.⁶⁵ In this sector, GHG emissions may be classified as process emissions from combustion and raw materials, emissions from combustion sources alone, and indirect emissions from the consumption of electricity.⁶⁶ As early as 2012, the EPA had identified nine applicable GHG control measures for integrated iron and steel plants, seven for coke making operations, thirteen for blast furnaces, eighteen for rolling mills and finishing operations, and sixteen for electric arc furnaces.⁶⁷ Several additional emission control strategies and new measures such as carbon capture utilisation and storage or recourse to hydrogen-based technologies have emerged in the following years. The applicability of different GHG emission-reducing technologies will vary depending on site-specific differences among plants, their process configuration and equipment, their operating practices, and the relevant product types.⁶⁸ However, their application at the unit or site level and their combination at the whole-facility level can result in considerable GHG emission reductions.

A truly effective steel and aluminium climate club would involve an identification of the *average GHG emission reductions* that could be achieved by having recourse to *different combinations* of applicable *GHG emission-reducing technologies*, under the *different routes* of steel and aluminium production. This (very complex) benchmarking operation would enable regulators to determine what levels of GHG emission reductions should be regarded as realistically achievable and

⁶¹ As broadly defined in Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on Industrial Emissions (Integrated Pollution and Prevention Control) [2010] OJ L 334/17, Article 3(10).

⁶² See e.g. United States EPA, *PSD and Title V Permitting Guidance for Greenhouse Gases* (2011), Part III.

⁶³ Differences between jurisdictions may emerge at the regulatory as well as regulatory implementation level. For more details on the US procedures, see 40 CFR 51.166(a)(12).

⁶⁴ This was caused by the decision of the US Supreme Court in *Utility Air Regulatory Group v. EPA*, 134 S. Ct. 2427 (2014). The Supreme Court's interpretation of the relevant Clean Air Act provisions has restricted the possibility for the EPA to set emission limit values for GHGs.

⁶⁵ For plenty of data, see the information available on the International Energy Agency website, <<https://www.iea.org>> (accessed March 2022).

⁶⁶ United States EPA, *Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Iron and Steel Industry* (2012), 2 ff.

⁶⁷ *Ibid.*, 8.

⁶⁸ *Ibid.*

be pursued under different routes of production. This would be the starting point for the identification of specific *output-based GHG emission limit values*, associated with the adoption or combination of different potential GHG emission-reducing strategies in different routes of production.⁶⁹

The process would have to be club-wide and top-down. The club's emission limit values, calculated on the basis of the relevant average GHG emission reductions, should not be adjustable on a case-by-case basis. In other words, the emission limit values to comply with should be 'hard' and mandatory ones.⁷⁰ Further, the permit requirements should apply to all facilities; this includes new as well as pre-existing ones. While facilities would be free to choose what GHG control measures or mix of measures to adopt, they would all have to comply with the 'hard' GHG emission limit values in force in the club. A feasible roadmap should be agreed, involving a gradual, realistic but progressive lowering of the applicable emission limit values. Further, it is worth stressing that continuous technological developments and improvements will require cyclical revisions of the relevant BATs/BACTs, benchmarks and emission limit values. Over the years, new technical developments and the enactment of more stringent emission limit values should result in the phasing-out of the most polluting technologies. Nor would this top-down approach conflict with price-based policies, such as recourse to carbon taxes or emission trading schemes; in fact, it would simply complement them.⁷¹

Turning to the applicable remedies, an installation-based approach along the lines described above could easily translate into specific *product standards*. Over time, this would enable members of the club to gradually ban goods produced in facilities which are not certified to comply with the club's emission limit values for the specific route of production. Alternatively, importers could refer to any verified GHG emissions embedded in their products to demonstrate that the latter have been produced with the best available GHG emission-reducing technologies benchmarked in the club.⁷² In the transition period, prior to the application of the bans, the option of lowering tariffs for imported products whose embedded emissions already comply with the club's requirements could be taken into consideration.⁷³ Using part of the revenues of any prospective carbon border measures (e.g. the CBAM) to finance the 'green' transition in LDCs and facilitate technology transfer in developing countries would also be a wise choice.

The application of a uniform installation-based approach throughout the club would be highly effective in environmental terms; further, it would solve the problems connected with the determination of specific decarbonisation commitments for the members' steel and aluminium sectors, as highlighted in the second section. Turning to the applicable remedies, the gradual enforcement of bans on goods produced in facilities that do not comply with the club's emission limit

⁶⁹ All emission limit values would have to be 'output-based', i.e. calibrated to the dimensions and the scale of production of the relevant facilities.

⁷⁰ This process would have to be quite different from (e.g.) the EPA's traditional case-by-case assessment and practice to include economic cost-benefit effectiveness considerations (i.e. considerations relating to the balance between the environmental benefits and economic costs associated with GHG emission reductions) when setting emission limit values and granting permits to specific facilities.

⁷¹ Stringent regulatory standards are simply likely to reduce the revenues from the collection of carbon taxes or auctions in emission trading schemes, in so far as GHG emissions decrease. For an acknowledgment that the GSAA arrangements would complement rather than substitute the EU CBAM, see the declarations by EU officials reported on the Financial Times, 'Fudgy Fixes and Fuzzy Vision in Transatlantic Trade' <<https://www.ft.com/alan-beattie>> (accessed March 2022).

⁷² As already seen, regulatory measures such as the CBAM and the BCA have already created incentives for producers/importers to ensure that all GHG emissions embedded in their products are verified.

⁷³ For the same point, see Lester, 'How Exactly Would The US-EU Section 232 Deal Affect Carbon Emissions?', *supra* note 16.

values would solve all the problems associated with recourse to punitive tariffs and quotas. Further, the combination of an installation-based approach and product standards would ensure that the club's arrangements are even-handed and equally applicable across members and non-members of the club. This is fundamental to preserve the club's legitimacy from an environmental perspective.

Finally, it is fair to suggest that in their design and application these measures would be deemed to be non-discriminatory, origin-neutral and compliant with the Chapeau requirements. 'Greener' (or more polluting) products originating from members and non-members would be treated in the same way. The reference to BATs/BACTs, benchmarks and installation emission limit standards would make it difficult to identify any aspect of discrimination between countries where the same conditions prevail. Nor would there be any coercive effects; facilities in non-member states could have recourse to any GHG emission control methods, as long as they complied with the club's emission limit values.

Could an installation-based approach and a focus on product standards provide an environmentally effective and WTO law compatible way forward for the GSAA? This question triggers a number of considerations. First, as highlighted in the second section, the 'non-market excess' component of the GSAA proposal will have to be very carefully coordinated with the decarbonisation elements of the arrangement. The GSAA should take a very generous approach to 'green' subsidies, in order not to discourage specific *countries* from joining the club. Second, the success of any prospective climate club will largely depend on the broader context in which the regulatory arrangements are situated. More specifically, a radically different tariff environment will be necessary to create incentives for *producers* in non-member states to invest in 'green' technologies, comply with the club's emission limit values and relevant product standards, and sell their steel and aluminium products in the club, as opposed to selling (polluting and cheap) products out of the club.⁷⁴

To conclude, a number of caveats apply as specifically regards the installation-based approach advocated in this section. The limit of this approach, in fact, lies in its high level of environmental ambition and associated economic and political costs. The benchmarking operations described above raise highly complex technical questions. The establishment of 'hard' GHG emission limit values for different routes of production in the steel and aluminium sectors would also be very difficult. Unlike in the relatively 'easy' case of international cooperation on phasing-out ozone-depleting substances,⁷⁵ taking action to reduce GHG emissions requires technically complex, large-scale, long-term and very costly shifts in each and every economic sector. Even within the circumscribed boundaries of the steel and aluminium sectors, drawing a line between 'permissible' and 'non-permissible' GHG emissions and setting 'hard' emission limit values is going to be extremely controversial.⁷⁶ The transposition of these regulatory arrangements at the state level would likely require legislative intervention; this is

⁷⁴ By way of example, the complete elimination of Section 232 tariffs would be extremely beneficial. The question of anti-dumping and countervailing duties is more complex. From a decarbonisation perspective, the 'environmental' component should prevail over the 'unfair trade' one. The application of anti-dumping and countervailing duties may discourage the production in non-members of 'green' products compliant with the club's standards; on these grounds, excluding the application of these duties against 'green' products would be beneficial. At this very early stage, however, it is impossible to predict what steps the members of the club would take. For an analysis of the interactions between the current high tariff environment and prospective climate club arrangements, with a particular focus on Section 232 duties and anti-dumping and countervailing duties, see Lester, 'How Exactly Would The US-EU Section 232 Deal Affect Carbon Emissions?', *supra* note 16, and Lester, *supra* note 25.

⁷⁵ Montreal Protocol on Substances that Deplete the Ozone Layer, 26 I.L.M. 1541, 1550 (1987).

⁷⁶ It is also worth noting that economic, social and political costs will be considerably higher in cases where action must be taken to retrofit existing sites, as opposed to cases where new facilities are being planned.

bound to trigger considerable political resistance.⁷⁷ Finally, regulatory implementation problems and difficulties associated with different levels of administrative capacity would also come into play; permitting, monitoring and enforcement play a central role under an installation-based approach.

Overall, WTO law compatible climate club arrangements informed by an uncompromising environmental rationale are unlikely to succeed in practice. Members and non-members of any prospective climate club, however, will soon have to confront the reality of climate change and its pervasive effects.

⁷⁷ For a reference to this point in the context of the discussion on the GSD, see Tucker and Meyer, *supra* note 14.