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After Elmau: Input to the Policy Debate on Climate Clubs

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I. I am a Lecturer in Law at Birkbeck College, University of London, and a Research Fellow at King's College London. I teach and research in the areas of environmental and climate change law, trade and the environment, and risk regulation. I have published extensively in all of these areas. Further information is available on my university profile.

II. I am writing in a personal capacity. I do not have any external or internal/institutional funding to report. I do not have any conflict of interest or potential conflict of interest to declare.

II. This input paper draws on my research and a number of academic articles that I have published throughout the last months.¹

IV. The paper is a follow-up to conversations held on an informal basis with relevant stakeholders in August 2022. The discussions focused on different potential regulatory approaches to the establishment of plurilateral climate club arrangements.

V. This paper should be cited as GC Leonelli, 'After Elmau: Input to the Policy Debate on Climate Clubs' (2022), input paper available for download on Elsevier/SSRN.

¹ GC Leonelli, 'Carbon Border Measures, Environmental Effectiveness and WTO Law Compatibility: Is There a Way Forward for the Steel and Aluminium Climate Club?' (2022) 21 *World Trade Review* 1; GC Leonelli, 'Guest Post: Full Carbon Pricing, Average Carbon Intensity and the Global Steel and Aluminium Arrangement: in Conversation with Bixuan Wu and Aaron Cosbey' (2022) *International Economic Law and Policy Blog*; 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' (2022) 42 *Legal Studies* 1; GC Leonelli, 'Export Rebates and The EU Carbon Border Adjustment Mechanism: WTO Law and Environmental Objections' (forthcoming 2022) 46 *Journal of World Trade*; GC Leonelli, 'Border Tax Adjustments and the WTO Law Compatibility of ETS/CBAM Export Rebates: Aut Simul Stabunt, Aut Simul Cadent' (2022) *Elsevier/SSRN*.

Summary

VI. Different proposals for the adoption of unilateral carbon border measures and for the establishment of plurilateral climate club arrangements have been put forward over the last months. This input paper focuses on climate clubs and assesses the advantages and the limitations of different regulatory models. It lays particular emphasis on questions surrounding the environmental effectiveness and WTO law compatibility of different potential arrangements.

VII. A soft approach based on voluntary or exceedingly flexible environmental commitments would replicate the weaknesses of the existing public international law regime. In a plurilateral context, a focus on the environmental effectiveness of climate clubs should take precedence over the attempt to broaden membership.

VIII. The environmental effectiveness of any prospective climate club will rest on the stringency of the Members' decarbonisation commitments, and the robustness of the relevant arrangements. The majority of existing proposals draw on a sectoral approach and target carbon-intensive and highly trade-exposed sectors. This could be a suitable starting point for climate club negotiations.

IX. This input paper examines different potentially applicable criteria for the establishment of economic or environmental equivalence between club Members. It also focuses on different remedies which may be imposed against products originating from non-Members.

X. The second section analyses climate club arrangements based on carbon pricing mechanisms and 'explicit' carbon prices. It illustrates the practical difficulties and environmental and WTO law shortcomings associated with this model. Further, it highlights that references to 'implicit' carbon prices are methodologically and technically unfeasible at the present stage.

XI. The third section employs a concise analysis of the transatlantic proposal for a Global Steel and Aluminium Arrangement to highlight the problems associated with recourse to punitive tariffs in a climate club context. Further, it emphasises that a state-based perspective and the imposition of tariffs against products originating from non-Members would be highly problematic.

XII. The fourth section analyses top-down and bottom-up approaches based on the establishment of environmental equivalence between club Members, product standards, and bans. Top-down installation-based approaches or bottom-up models based on average sectoral carbon intensity reduction commitments could provide a suitable way forward in the context of climate club negotiations. The former model would be more effective in environmental terms and more likely to be WTO law compatible. The latter would be more feasible in political and administrative terms.

XIII. Further, the fourth section conducts a brief examination of alternative hybrid arrangements. It highlights that hybrid regulatory approaches would be problematic in many respects.

XIV. The fifth and final section draws all relevant conclusions. References to 'explicit' carbon prices, 'implicit' carbon prices, or product standards addressing embedded greenhouse gas ('GHG') emissions are the only ways to ensure that regulatory arrangements are even-handedly applied within and out of the club. However, as the analysis of the input paper demonstrates, references to either 'explicit' or 'implicit' carbon prices are associated with several problems; on these grounds, a focus on environmental equivalence and product standards would be more promising.

XV. Even-handed arrangements based on environmental equivalence, product standards and product bans provide the most environmentally effective way forward for climate clubs. The further any climate club model gets from a focus on environmental equivalence and recourse to product standards, the less environmentally effective the arrangements will be and the more likely to be WTO law incompatible.

1. Introduction: Towards Environmentally Effective and WTO Law Compatible Climate Clubs

1. The climate crisis is unfolding before our eyes. If any doubts regarding the pervasive and potentially irreversible effects of climate change persisted, they would be dispelled by the findings of the Sixth Assessment Report of the Intergovernmental Panel on Climate Change ('IPCC').² Increasing transnational awareness of the disastrous impacts of climate change, however, has not been complemented by a robust roadmap for regulatory action at the public international law level. The troubled negotiations of the Glasgow Climate Pact and the disappointing results of the COP26 have once again testified to the limits of multilateralism.³

2. In this very complex regulatory landscape, some jurisdictions are pioneering new approaches. Proposals for the adoption of unilateral carbon border measures have been put forward in the EU and the US. Different proposals for the establishment of plurilateral climate club arrangements have also been advanced.⁴ These include the transatlantic proposal for a Global Steel and Aluminium Arrangement ('GSAA'),⁵ and the ongoing negotiations within the G7 for the creation of an 'ambitious, bold and cooperative' climate club or alliance.⁶ This input paper focuses on plurilateral climate club arrangements, their potential underlying model and regulatory architecture, and the prospects for the establishment of environmentally effective and WTO law compatible climate clubs.

3. The effectiveness of any prospective climate club will largely depend on three factors: the robustness of the regulatory arrangements, the stringency and level of ambition of the relevant environmental commitments, and the number of Members. The flexible pledge-and-review approach underlying the Paris Agreement has so far proved largely unsuccessful in tackling climate change.⁷ Embracing a soft approach and providing for voluntary or exceedingly flexible decarbonisation commitments would replicate the weaknesses of the existing public international law regime. This militates in favour of a more ambitious approach. In a plurilateral context, a focus on environmental effectiveness should thus take precedence over the attempt to broaden the club's membership.

4. As a preliminary point, it is also worth noting that a sector-specific focus could circumscribe the boundaries of the club arrangements, demarcate the scope of the Members' commitments,

² IPCC, *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC, 2021).

³ For more information on the COP26 and for the final text of the Glasgow Climate Pact, see <<https://ukcop26.org/>> and <<https://unfccc.int/documents/310475>> (accessed August 2022).

⁴ For the original theorisation of climate clubs, see W Nordhaus, 'Climate Clubs: Overcoming Freeriding in International Climate Policy' (2015) 105 *American Economic Review* 1339. The model advocated by Nordhaus involved recourse to carbon pricing mechanisms within the club, and the imposition of punitive tariffs against products originating from non-Members of the club.

⁵ *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 August 2022).

⁶ German Federal Ministry of Finance, 'Steps Towards an Alliance for Climate, Competitiveness and Industry – Building Blocks of a Cooperative and Open Climate Club' (2021).

⁷ Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No 16-1104.

and facilitate the negotiations. This sectoral approach is currently being pioneered in the context of the GSAA negotiations; the steel and aluminium sectors have been selected in the light of their GHG emissions output and trade intensity at the transnational level. A sectoral focus could also be helpful in the context of the G7 negotiations.

5. Establishing equivalence among club Members is the first key issue to be addressed in the context of climate club negotiations. As explained in the second, third and fourth sections, equivalence may be assessed in economic or environmental terms. The two approaches involve recourse to different criteria, and are alternative rather than complementary in nature. Differentiation between Members may prove necessary. However, it could weaken the environmental efficacy of the arrangements. On these grounds, combining uniform club-wide commitments with active support for capacity-building, technical assistance and financial transfers by developed countries would be more beneficial in environmental terms.

6. Ideally, plurilateral arrangements should be based on uniform environmental commitments applied throughout the club. This paper suggests that a focus on environmental equivalence and on the pursuit of specific environmental goals would be considerably more effective than a focus on economic equivalence and club-wide recourse to specific regulatory means (e.g. carbon pricing mechanisms). Further, agreement on robust regulatory arrangements to assess equivalence and the pursuit of the greatest possible level of club-wide regulatory harmonisation would improve the effectiveness and WTO law compatibility of climate club arrangements. This point is addressed in the fourth section. A focus on product standards would be the best way to achieve this result; these product standards, in turn, may be identified via a top-down (installation-based) or a bottom-up (average sectoral carbon intensity) approach.

7. The second key point relates to the environmental effectiveness of the arrangements, and their stringency and level of ambition. The arrangements should involve specific targets for club Members; these should be complemented by a roadmap for implementation. The absence of specific GHG emission reduction commitments or mere references to the current GHG emissions or sectoral carbon intensity of club Members would undermine the environmental legitimacy of the club. Members should lead by example and enact ambitious decarbonisation policies, prior to imposing remedies against non-Members. This will be crucial to ensure that the remedies applied against non-Members are not perceived as a form of green protectionism.

8. The final and crucial point relates to the choice, calibration and application of remedies. The application of remedies against products originating from non-Members will be the main incentive for the latter to join the club. However, the design of adequate remedies poses a plurality of challenges in environmental and WTO law terms. These may be defined as two sides of the same coin; in this specific context, WTO law rules can help capture regulatory arrangements that are problematic in terms of environmental integrity and environmental effectiveness.⁸

⁸ It is fair to suggest that any remedies imposed against products originating from non-Members would be incompatible with the substantive obligations of the GATT 1994. The key question is thus whether the arrangements could be justified under Article XX GATT and whether they would meet the requirements of the

9. The second section provides a brief overview of the problems associated with club arrangements and remedies based on an assessment of economic equivalence. Environmental shortcomings and difficulties in terms of WTO law compatibility come into play; these are associated with references to 'explicit' carbon prices, and methodological constraints in the identification of 'implicit' carbon prices. The analysis further highlights that climate club arrangements focused on the adoption of carbon pricing, carbon border adjustments and export rebates would be extremely difficult to implement, and have lost political currency in transnational policy circles.

10. The third and fourth sections turn to the design of climate club arrangements and remedies based on environmental equivalence. In this context, the main problems are associated with recourse to a state-based perspective and questions surrounding the even-handed application of the arrangements within and out of the club.

11. The fourth section conducts a close examination of the two regulatory models that may provide the best environmental results. Both regulatory models are based on robust criteria for the assessment of environmental equivalence between club Members; albeit to a different extent, they both involve a degree of harmonisation between club Members. Further, both regulatory models include specific GHG emission reduction targets, and the application of punitive remedies (bans) for products originating from non-Members. Under the two models, product standards would be respectively identified via a top-down (installation-based) or a bottom-up (average sectoral carbon intensity) approach. The latter solution provides a greater degree of flexibility to club Members; the main flipside is that the arrangements would not be even-handedly applied within and out of the club. This might pose some problems in terms of WTO law compatibility.

12. The fourth section then provides a brief overview of hybrid solutions involving recourse to different remedies by different club Members. Hybrid approaches may be easier to reconcile with the application of the EU carbon border adjustment mechanism ('CBAM');⁹ questions surrounding the coordination between the EU CBAM and plurilateral climate club arrangements have so far remained unanswered. The fifth and final section draws all relevant conclusions.

Chapeau (introductory clause) of this Article. The Chapeau stipulates that (measures that have been provisionally justified under the sub-paragraphs of Article XX) *shall not be 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*. For the purposes of the present analysis, as explained in greater detail throughout the next sections, the key points are whether the arrangements fail to treat 'environmentally equivalent' products in the same way; whether they arbitrarily or unjustifiably discriminate between countries where the same relevant (environmental) conditions prevail; and whether they could result in coercive effects.

⁹ See European Commission, *Proposal for a Regulation of the European Parliament and of the Council Establishing a Carbon Border Adjustment Mechanism*, COM(2021) 564 Final.

2. The EU CBAM and Climate Club Arrangements Based on Carbon Pricing

13. In July 2021, the European Commission published its long awaited proposal for the establishment of a CBAM. Inter-institutional negotiations are currently underway at the EU level. The European Parliament has put forward a number of proposed amendments: these aim to centralise the administration of the scheme and to broaden its sectoral scope of application and emission coverage. Further, and controversially, the European Parliament is seeking the inclusion of CBAM/Emission Trading System ('ETS') rebates for EU products exported and sold on foreign markets.¹⁰ At the current stage, it is impossible to predict whether any of these amendments will be incorporated in the final Regulation.

14. The notion of carbon leakage is central to the entire regulatory design of the CBAM.¹¹ The CBAM aims to tackle potential carbon leakage by ensuring that imported products 'bear' the same exact economic costs that are 'borne' by EU products due to the operation of the ETS. On these grounds, the regulatory design of the CBAM is informed by a focus on economic equivalence and is characterised by recourse to economic remedies.¹² Importers would have to annually purchase a number of CBAM certificates to offset the GHG emissions embedded in their products.¹³ The price of CBAM certificates would be linked to the average auctioning price of ETS allowances, as further adjusted to account for any free allowances allocated to EU firms.¹⁴ The GHG emissions embedded in imported products would have to be calculated and verified by importers; where this proved impossible, default values would apply.¹⁵ In accordance with the criterion of economic equivalence, any 'explicit' carbon price already 'borne' by imported products in their country of origin would be taken into account and 'weighed' when calculating the number of CBAM certificates to be purchased and surrendered.¹⁶

¹⁰ European Parliament, Amendments adopted by the European Parliament on 22 June 2022 on the proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Union, Decision (EU) 2015/1814 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme, and Regulation (EU) 2015/757 (COM(2021)0551 – C9-0318/2021 – 2021/0211(COD)), P9_TA(2022)0246, Revision of the EU emission trading system; and European Parliament, Amendments adopted by the European Parliament on 22 June 2022 on the proposal for a Regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism (COM(2021)0564 – C9-0328/2021 – 2021/0214(COD)), P9_TA(2022)0246, Carbon border adjustment mechanism.

¹¹ Carbon leakage results from the combination of two factors. The first factor consists in transnational divergencies in the stringency of GHG emission reduction policies, associated with different economic (regulatory compliance) costs for firms. The second factor is trade intensity, whereby 'greener' and more expensive products find themselves in competition with more polluting and cheaper products. See 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.

¹² Leonelli, 'Practical Obstacles and Structural Legal Constraints in the Adoption of "Defensive" Policies', *supra* note 1.

¹³ Articles 3(15) and (20), 4, 5, 6, 7(2) and 8 in the European Commission's proposed Regulation.

¹⁴ Articles 21(1) and 31.

¹⁵ Articles 6, 7(2) and 8 and Annex III.

¹⁶ Articles 2(5) and 3(23).

15. The CBAM's regulatory design and focus on carbon leakage, economic equivalence and economic remedies offers a potential way forward in the context of climate club negotiations. However, climate club arrangements based on carbon pricing systems would be problematic in several respects.

16. As a preliminary observation, it is worth noting that these arrangements would be politically controversial and unfeasible in practical terms. This model postulates the adoption of carbon pricing systems ('price-based policies'), carbon border adjustments and export rebates by all club Members.¹⁷ In several jurisdictions, including the US, these measures are highly unlikely to be adopted. As a result, carbon pricing-centred club arrangements have lost political currency at the transnational level.

17. Achieving *full* economic equivalence across the club would either involve the application of a club-wide carbon pricing system, or the coordination of different price-based policies. Under the latter scenario, club Members may have recourse to either carbon taxes or cap-and-trade systems; however, they would have to levy the same 'explicit' carbon price. Neither option is likely to work. The establishment of a club-wide carbon pricing system would be politically controversial and exceedingly difficult in practical terms. The coordination of different carbon pricing mechanisms, on the other hand, is rendered impossible by the fluctuations in 'explicit' carbon prices that are typical of cap-and-trade systems. Agreement on a minimum carbon price floor across the club would be more feasible. Nonetheless, the political obstacles mentioned in paragraph 16 would still come into play.

18. The environmental efficacy of this kind of arrangements might be limited. First, agreement on recourse to specific regulatory means (i.e. carbon pricing) can tell us very little of the environmental effectiveness of the arrangements; this ultimately rests on the imposition of sufficiently high 'explicit' carbon price.¹⁸ Second, the absence of a uniform 'explicit' carbon price may undermine the environmental effectiveness of the club arrangements.

19. Turning to the question of economic remedies, reference to 'explicit' carbon prices is associated with some problems from an environmental and WTO law perspective. Reliance on economic (as opposed to environmental) equivalence and a narrow focus on 'explicit' carbon prices can neither capture the environmental effectiveness of non-price-based policies in force in different jurisdictions, nor account for the 'implicit' carbon prices that are 'borne' by products imported in the club. Products originating from a non-Member would have to 'bear' the same 'explicit' carbon price 'borne' by products originating within the club. However, the stringency of the non-Member's (non-price-based) policies and the extent to which divergencies in the environmental effectiveness of price-based and non-price-based policies

¹⁷ In other words, all club Members would have to adopt carbon taxes or set cap-and-trade (emission trading) systems in place; as a result, all Members would have an 'explicit' carbon price. Carbon border adjustments and export rebates in each Member would then ensure that the entire system is competition-neutral.

¹⁸ As the EU experience proves, this could be particularly difficult in the case of emission trading systems; under these systems, 'explicit' carbon prices (i.e. the price of emission allowances) are governed by supply and demand on the market.

may actually result in carbon leakage would not be taken into account. This is inherent to a focus on economic equivalence and 'explicit' carbon prices.¹⁹ Climate clubs based on carbon pricing would level the economic playing field; under specific circumstances, however, they may not achieve any environmental goals (i.e. prevent carbon leakage).

20. Symmetrically, these arrangements fail to account for the 'implicit' carbon prices 'borne' by products originating from non-Members that have had recourse to non-price-based policies.²⁰ 'Explicit' carbon prices are often regarded as additional to 'implicit' carbon prices; from an environmental law perspective, however, this construction is not tenable.²¹ For the same reason, carbon border adjustments based on 'explicit' carbon prices also fail to treat 'environmentally equivalent' products in the same way.²² Calculating 'implicit' carbon prices would be the only appropriate solution; 'implicit' prices could offer a policy-neutral tool to measure the regulatory compliance costs borne by actors within and out of the club. Nonetheless, the calculation of 'implicit' prices is fraught with methodological and technical obstacles. This is illustrated by the Commission's Impact Assessment on the CBAM and the

¹⁹ This may result in a finding that the regulatory design and application of the carbon border adjustments imposed within the club result in arbitrary or unjustifiable discrimination between countries where the same environmental conditions prevail. This discrimination could be deemed arbitrary or unjustifiable in nature because the application of carbon border adjustments to products originating from countries where carbon leakage would not materialise would afford economic protection to Member products, rather than achieving environmental goals. For an analysis of this point in the context of an examination of the CBAM, see Leonelli, 'Practical Obstacles and Structural Legal Constraints in the Adoption of "Defensive" Policies', *supra* note 1; and Leonelli, 'Carbon Border Measures, Environmental Effectiveness and WTO Law Compatibility', *supra* note 1.

²⁰ This may also result in a finding that the regulatory design and application of these carbon border measures result in arbitrary or unjustifiable discrimination between countries where the same environmental conditions prevail; the reason is that, by failing to account for 'implicit' carbon prices, these measures discriminate between products originating from different countries and grant an economic advantage to products originating from jurisdictions that have had recourse to price-based policies. From this perspective, coercive effects may also come into play; in other words, climate club arrangements based on carbon pricing, carbon border adjustments and export rebates may indirectly coerce non-Members into adopting price-based (as opposed to partial-price-based or non-price-based) GHG emission reduction policies. For an analysis of these points in the context of an examination of the CBAM, see Leonelli, 'Practical Obstacles and Structural Legal Constraints in the Adoption of "Defensive" Policies', *supra* note 1; and Leonelli, 'Carbon Border Measures, Environmental Effectiveness and WTO Law Compatibility', *supra* note 1.

²¹ Just like the CBAM, carbon border adjustments based on 'explicit' carbon prices and the calculation of the GHG emissions embedded in products can only partially account for 'implicit' carbon prices and their stringency. The stringency of non-price-based policies is reflected in the GHG emission outputs of facilities and the GHG emissions embedded in products. In this sense, carbon border adjustments partially capture the effectiveness of these policies; a product originating from a country with stringent non-price-based policies may end up paying less than a product originating from a country with ineffective price-based policies. Nonetheless, this cannot address the question of the regulatory compliance costs associated with non-price-based policies fully. Comparing 'explicit' and 'implicit' carbon prices is just like attempting to compare apples with oranges. Over time, facilities operating in jurisdictions which have had recourse to non-price-based policies may have 'borne' 'implicit' carbon prices which are equal to or higher than the 'explicit' carbon prices 'borne' by facilities with the same exact GHG emission output over the same period. For this reason, 'explicit' carbon prices are *alternative* rather than *additional to* 'implicit' carbon prices; on these grounds, carbon border adjustments based on 'explicit' carbon prices cannot fully account for 'implicit' marginal abatement costs. For an analysis of these points in the context of an examination of the CBAM, see Leonelli, 'Practical Obstacles and Structural Legal Constraints in the Adoption of "Defensive" Policies', *supra* note 1; and Leonelli, 'Carbon Border Measures, Environmental Effectiveness and WTO Law Compatibility', *supra* note 1.

²² Leonelli, 'Guest Post: Full Carbon Pricing, Average Carbon Intensity and the Global Steel and Aluminium Arrangement', *supra* note 1.

legislative history of the US Coons-Peters Bill.²³ For this reason, employing 'implicit' carbon prices to establish equivalence within the club and calculate carbon border adjustments is not a viable option.

21. The last points to address relate to the thorny question of export rebates. The adoption of export rebates is particularly problematic in the context of unilateral carbon border measures.²⁴ In a climate club context, this question would be less controversial. After all, carbon pricing-centred climate club arrangements presuppose the coexistence and application of carbon pricing, carbon border adjustments and export rebates.

22. Nonetheless, export rebates are highly likely to produce environmentally detrimental effects in non-Members of the club. Products originating in the club and sold in non-Members would get a 'refund' for any 'explicit' carbon price that they have 'borne'; this would strengthen their competitive position on foreign markets. Products originating from (or sold in) non-Members, however, are likely to have 'borne' 'explicit' or 'implicit' carbon prices. From this perspective, products originating from within the club would enjoy a competitive advantage. This results in environmental externalities. First, it reduces incentives for non-Members of the club to enact more stringent GHG emission reduction standards; these would translate into greater 'explicit' or 'implicit' carbon prices for national firms. Second, export rebates entrench the competitive position of more polluting and cheaper products originating from non-Members, and symmetrically undercut the competitive opportunities of 'greener' and more expensive products.

23. As this section has endeavoured to demonstrate, carbon pricing-centred climate club arrangements are associated with several problematic aspects and shortcomings. Further, the potential 'transposition' of the EU approach in a broader climate club context has lost political momentum.

24. This concludes the overview of this potential regulatory model. Questions surrounding the coordination of the EU CBAM with different approaches to plurilateral climate club arrangements are discussed in greater detail in the fourth section below.

²³ For an in depth analysis, see Leonelli, 'Practical Obstacles and Structural Legal Constraints in the Adoption of "Defensive" Policies', *supra* note 1. The Coons-Peters Bill introduced in the US Senate in 2021 sought to overcome the obstacles associated with the determination of 'implicit' carbon prices by embracing a state-based perspective and by seeking to measure the environmental equivalence of different jurisdictions' price-based and non-price-based policies.

²⁴ For more details, see Leonelli, 'Export Rebates and the EU Carbon Border Adjustment Mechanism', *supra* note 1; and Leonelli, 'Border Tax Adjustments and the WTO Law Compatibility of ETS/CBAM Export Rebates', *supra* note 1.

3. Environmental Equivalence and The Problem of Punitive Tariffs: The Transatlantic Proposal for a GSAA

25. In the wake of the EU proposal for a CBAM, Senators Coons and Peters and Senator Whitehouse put forward two different proposals for the adoption of carbon border measures in the US.²⁵ Neither Bill has been (or is likely to be) adopted. The regulatory design of the Whitehouse Bill, however, sheds some light on the US priorities and negotiating position in the context of transatlantic discussions on climate clubs.

26. At the end of October 2021, as briefly mentioned above, the US and the EU published a Joint Statement on the prospective establishment of 'global steel and aluminium arrangements to restore market-oriented conditions and address carbon intensity'.²⁶ The Statement draws an express connection between two overlapping yet different goals: tackling global non-market excess capacity in the steel and aluminium sectors, and reducing their carbon intensity. This framing is influenced by an acknowledgment of the entrenched Chinese practice to heavily subsidise its industry without regard to the relevant methods of production.²⁷

27. The Joint Statement lays out the blueprint for the creation of a climate club among like-minded economies.²⁸ According to the Statement, 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 decarbonisation, and screen inward investment from non-market oriented actors.²⁹ This suggests that Members will identify criteria to establish environmental equivalence across the club and will take on specific commitments relating to the decarbonisation of their steel and aluminium sectors. Turning to remedies, Members will commit to restrict market access for non-participants that do not meet standards for low-carbon intensity, and restrict market access for non-participants that do not meet conditions of market orientation and that contribute to non-market excess capacity.³⁰ 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.³¹

²⁵ FAIR Transition and Competition Act, S. GAI21718 59G, 117th Cong. (2021); and Clean Competition Act, S. 4355, 117th Cong. (2022).

²⁶ Joint Statement, *supra* note 5, section 2.

²⁷ For a detailed analysis, see Leonelli, 'Carbon Border Measures, Environmental Effectiveness and WTO Law Compatibility', *supra* note 1.

²⁸ Joint Statement, 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 August 2022).

²⁹ Joint Statement, points (iii) to (vi).

³⁰ *Ibid*, point (ii).

³¹ For the original policy proposal for a 'Green Steel Deal', see TN Tucker and T Meyer, *A Green Steel Deal: Towards a Pro-Jobs, Pro-Climate Cooperation on Carbon Border Measures*, Roosevelt Institute (2021). The policy proposal for a GSAA bears a close resemblance to this proposal. For a discussion, see S Lester, 'Prospects

28. The GSAA is not designed to tackle carbon leakage; rather, it pursues specific environmental (decarbonisation) goals. Nor is it based on the establishment of economic equivalence and the imposition of economic remedies, as far as can be inferred from the transatlantic declaration. The Joint Statement, however, has left several questions unanswered.

29. The first relevant question regards the criteria that will be employed to establish environmental equivalence or determine specific decarbonisation commitments in the club. The Whitehouse Bill has pointed to a policy-neutral value which might potentially be employed to this end: average sectoral carbon intensity. This value results from dividing the total sectoral (in this case, steel and aluminium) GHG emissions in different Members by their sectoral production output.³² Equivalence might be measured (and club commitments might be determined) against the yardstick of the Members' average sectoral carbon intensity.

30. Turning to effectiveness, it is unclear whether Members of the club would accept to take on specific and binding commitments regarding the further decarbonisation of their steel and aluminium sectors. The stringency and level of ambition of any such commitments is impossible to predict at this stage.

31. As regards the imposition of remedies, recourse to punitive tariffs (or quotas) might be ineffective in environmental terms and would be problematic from a WTO law perspective. First of all, the transatlantic declaration provides no details regarding the criteria for the determination and calibration of tariffs. Recent declarations appear to suggest that tariffs (or any other available remedies) would be calibrated to the carbon intensity of steel and aluminium products and be applied against specific categories of goods.³³ One possibility would be to impose tariffs against non-Member products whose embedded emissions exceed the average sectoral carbon intensity of club Members. Nonetheless, it is reasonable to suggest that the US or other Members might push for the imposition of tariffs against all steel and aluminium products originating from non-market economies ('non-market excess' component of the arrangement); this would involve the application of a state-based (rather than a product-based) perspective.³⁴ The Whitehouse Bill's regulatory design, for instance, is informed by a similar focus.³⁵

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

³² S 4691(b)(1)(B).

³³ For (broad) references to a product-based perspective in the context of the GSAA and a focus on the GHG emissions embedded in steel and aluminium products, see the statements of the Director General of DG Trade Sabine Weyand during the Center for Strategic and International Studies ('CSIS') event 'Rethinking Trade in a Geopolitical Context: Trends and Transatlantic Cooperation', available at <<https://www.csis.org/events/rethinking-trade-geopolitical-context-trends-and-transatlantic-cooperation>> (accessed August 2022).

³⁴ I.e., all covered steel and aluminium products originating from non-market economies would be the object of punitive tariffs regardless of their carbon intensity and embedded GHG emissions.

³⁵ S 4691(b)(3)(A)(ii).

32. Second, the extent to which punitive tariffs might work in the current high tariff environment is unclear. This calls into question whether tariffs would be an effective remedy.³⁶

33. Third, recourse to either state-based or product-calibrated punitive tariffs is likely to be WTO law incompatible. Tariffs imposed against steel and aluminium products originating from non-Members (or from non-market economies), regardless of their carbon intensity, would fail to differentiate between 'green' and highly polluting products.³⁷ This is a considerable limitation of all state-based (as opposed to product-based) approaches. Carbon intensity-calibrated tariffs imposed against specific categories of products would still fail to treat 'environmentally equivalent' products originating from within and out of the club in the same way. A highly polluting product manufactured in the club would not be the object of any specific remedies; the reason is that the GSAA Members are very likely to take on commitments relating to the overall decarbonisation of their steel and aluminium sectors. An 'environmentally equivalent' non-Member product, on the other hand, would be the object of punitive tariffs (e.g. if its embedded emissions exceed the club's average sectoral carbon intensity, or other predetermined values). In this sense, the arrangements would not be even-handedly applied to 'environmentally equivalent' products originating within and out of the club.³⁸

34. This concise analysis of the GSAA has cast some light on potential difficulties in the establishment of environmental equivalence and has emphasised the problems associated with recourse to punitive tariffs. It has also highlighted the limitations of a state-based approach, as opposed to a product-based perspective. These elements militate in favour of the adoption of a different regulatory approach.

35. The next section explores and discusses alternative regulatory approaches to the establishment of plurilateral climate club arrangements. These include top-down and bottom-up models based on environmental equivalence and product standards, and hybrid approaches.

³⁶ For a detailed discussion of the problems associated with recourse to punitive tariffs, see Lester, 'Prospects for the Green Steel Deal', *supra* note 31; Lester, 'How Exactly Would The US-EU Section 232 Deal Affect Carbon Emissions?', *supra* note 31; and more recently S Lester, 'Can Tariffs Help Bring Down Carbon Emissions? Maybe, But Probably Not Under Current Proposals', *International Economic Law and Policy Blog*, August 2022.

³⁷ In this case, 'green' and highly polluting products originating from non-Members would be the object of the same exact treatment. Further, 'green' products originating from non-Members would be the object of punitive tariffs, whereas 'green' or even more polluting products originating from Members would not. This fails to treat 'environmentally equivalent' products in the same way and is difficult to reconcile with the Chapeau of Article XX GATT. Leonelli, 'Carbon Border Measures, Environmental Effectiveness and WTO Law Compatibility', *supra* note 1.

³⁸ This issue may come into play at the provisional justification stage, under sub-paragraph (g); however, questions surrounding the even-handed nature of the arrangements are more likely to be assessed under the Chapeau. Leonelli, 'Carbon Border Measures, Environmental Effectiveness and WTO Law Compatibility', *supra* note 1.

4. Alternative Approaches: Environmental Equivalence and Product Standards versus Hybrid Models

36. This section examines alternative regulatory approaches to the establishment of climate clubs. The first sub-section provides an overview of top-down installation-based approaches, involving recourse to product standards and bans. The second sub-section examines bottom-up approaches based on the determination of the club Members' average sectoral carbon intensity. These also involve recourse to product standards and bans. The final sub-section turns to hybrid models; as the analysis illustrates, these suffer from specific limitations in environmental and WTO law terms.

A. Top-Down Installation-Based Approaches, Product Standards and Bans

37. Top-down installation-based approaches are associated with several advantages in environmental and WTO law terms. Their main weakness lies in their high level of environmental ambition, and considerations surrounding political and administrative feasibility.

38. Under these models, equivalence would be established in environmental terms. *Facilities* operating in club Members would all have to comply with specific *GHG emission limit values*; some flexibility could be achieved by taking indirect emissions into account in the calculations.³⁹ Emission limit values would be determined by taking the best available techniques ('BATs', also known as best available control technologies or 'BACTs')⁴⁰ under different routes of production in different sectors as a benchmark.⁴¹ The process would involve the comparison of alternative pollution control technologies, the elimination of technologies which would be technically unfeasible, the determination of the GHG emissions associated with recourse to the most effective remaining technologies, and the granting of a permit subject to compliance by facilities with the relevant GHG emission limits.

39. The applicability of different GHG emission-reducing technologies varies depending on site-specific differences among facilities, their process configuration and equipment, their operating practices, and the relevant product types.⁴² However, their application at the unit or site level and their combination at the whole-facility level can result in considerable GHG

³⁹ 'Direct' emissions are emissions from the production processes of goods; 'indirect' emissions are associated with the production of electricity, heating and cooling processes.

⁴⁰ BATs are 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). For references to BACTs, see United States EPA, *PSD and Title V Permitting Guidance for Greenhouse Gases* (2011), Part III.

⁴¹ For a detailed analysis of this regulatory model, see Leonelli, 'Carbon Border Measures, Environmental Effectiveness and WTO Law Compatibility', *supra* note 1. For a focus on BATs, the GHG emission output of facilities and product emissions, see also International Energy Agency, *Achieving Net Zero Heavy Industry Sectors in G7 Members* (IEA, 2022).

⁴² Leonelli, 'Carbon Border Measures, Environmental Effectiveness and WTO Law Compatibility', *supra* note 1; and International Energy Agency, *supra* note 41.

emission reductions. A top-down installation-based model would involve the identification of the *average GHG emission reductions* that could be achieved by having recourse to *different combinations* of applicable *GHG emission-reducing technologies*, under *different routes of production in different sectors*. This complex benchmarking operation would enable regulators to determine what levels of GHG emission reductions could be realistically achieved and should be pursued in the club. 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 under different routes of production.⁴³ Permit requirements should apply to all facilities. 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. The environmental effectiveness and WTO law compatibility of the arrangements would be affected by a soft approach and recourse to voluntary emission limit standards.⁴⁴

40. If uniform emission limit values applied to all facilities in club Members, full environmental equivalence would be achieved; in other words, all products manufactured under specific routes of production in the club would be associated with a maximum level of embedded GHG emissions. Alternatively, different Members could apply different emission limit values to their facilities. Agreement by club Members on a feasible and realistic roadmap for further reductions in the emission limit values for facilities would be crucial to enhance the environmental effectiveness of the arrangements.

41. As regards the available remedies, an installation-based approach could easily result in the identification of product standards. Output-based emission limit values for facilities and the calculation of the GHG emissions embedded in products are two sides of the same coin. This means that club Members could enforce bans on non-Member products whose embedded GHG emissions exceed the club's values; this is the same as applying bans on non-Member products manufactured in facilities that exceed the club's hard emission limit values. If different Members of the club applied different emission limit values, the scope of bans on non-Member products would vary accordingly.

42. The arrangements would thus be product-based⁴⁵ and even-handedly applied within and out of the club; 'environmentally equivalent' products originating from within and out of the club would be treated in the same way.⁴⁶ This solution would be highly effective in

⁴³ 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.

⁴⁴ I.e., bans on non-Member products whose embedded emissions exceed the club's emission limit values would likely be WTO law incompatible if the emission limit values applied in the club were voluntary rather than mandatory in nature. See *infra* in this sub-section.

⁴⁵ I.e. they would be calibrated to the GHG emissions embedded in products, and would not target all products originating from (specific) non-Members. For an analysis of a state-based perspective and its shortcomings, see *supra* in the third section.

⁴⁶ Within the club, as explained *supra* in this section, products would not exceed a specific amount of embedded GHG emissions; these would result from the mandatory emission limit values applied to facilities. Any non-Member products exceeding the relevant GHG emission value could then be banned within the club. This would

environmental (decarbonisation) terms and WTO law compatible.⁴⁷ Recourse to bans, as opposed to tariffs or carbon border adjustments, would create greater incentives for non-Members to join the club. Further, it would create greater incentives for producers in non-Members to invest in 'green' technologies.⁴⁸ On these grounds, this regulatory approach offers the most promising way forward.

43. As anticipated above, the main limitation of this model is associated with its high level of ambition. Drawing a line between permissible and non-permissible GHG emission limit values would be highly controversial.⁴⁹ It is important to highlight again that, in order for the arrangements to be even-handedly applied and for the product bans to be WTO law compatible, the club's emission limit values would have to apply to *all facilities*. A soft approach based on voluntary commitments and standards would neither be legally tenable, nor environmentally effective. Whether club Members would agree to apply these binding emission limit values and enforce them, however, is unclear. Jurisdictions that have had recourse to carbon pricing mechanisms may find this solution controversial; after all, price-based policies and non-price-based regulatory standards are alternative policy strategies and are quite difficult to reconcile. Under an installation-focused approach, regulatory compliance costs are associated with the imposition of (increasingly stringent) regulatory standards over time. Carbon pricing, by contrast, penalises high emitters with an obligation to pay more than 'green' producers for their GHG emissions. The two different regulatory strategies pursue the same exact goals. If an installation-focused approach applied all over the club, producers in countries that have had recourse to price-based policies would object to the continued application of carbon pricing.

44. Further, the adoption of plurilateral climate club arrangements based on product bans would trigger several questions regarding the role and scope of application of the EU CBAM.⁵⁰ Would

treat 'environmentally equivalent' products in the same way and would not affect the even-handed nature of the arrangements.

⁴⁷ The arrangements would treat 'environmentally equivalent' products in the same way and would not result in any form of arbitrary or unjustifiable discrimination between countries where the same conditions prevail. Further, they would not have any coercive effects; the reason is that BATs and emission limit values are technology-neutral.

⁴⁸ However, a caveat applies. As rightly noted in the literature, anti-dumping and counter-vailing duties should *not* be applied to non-Member products complying with the club's emission limit values; this is necessary to create adequate incentives for decarbonisation in non-Members. For more details on this point, see Lester, 'Prospects for the Green Steel Deal', *supra* note 31; and Lester, 'How Exactly Would The US-EU Section 232 Deal Affect Carbon Emissions?', *supra* note 31. It is also worth noting that recourse to product bans in the specific/circumscribed context of the GSAA climate club would leave several questions unanswered. More specifically, the role of the non-market excess component of the arrangements would remain unclear; if product bans applied to all non-Member products with excess GHG emissions, the 'unfair trade' remedies could only target 'green' products from non-market economies. The imposition of anti-dumping and counter-vailing duties, however, would undermine the environmental effectiveness of the arrangements and reduce all incentives for decarbonisation in non-Members; this point has been briefly mentioned above. An analysis of this question goes beyond the circumscribed boundaries of the present examination, as this paper focuses on alternative climate club regulatory models rather than the GSAA.

⁴⁹ The recent decision of the US Supreme Court in *West Virginia v. EPA* has shed further light on potential obstacles in the adoption and enforcement of administrative regulations aimed at reducing sectoral GHG emissions; however, it is worth noting that the Supreme Court did not make any specific findings regarding the identification of BACTs by the EPA and the imposition of emission limit values on facilities. See Supreme Court of the United States, *West Virginia et al. v. Environmental Protection Agency et al.*, No. 20–1530 (2022).

⁵⁰ For more details, see *infra* in the next sub-section.

the CBAM have residual application, i.e. would it apply to non-banned products originating from non-Members of the club? Could it possibly apply to products originating from club Members? The coordination of plurilateral arrangements with the CBAM raises a plurality of questions. Together with the problems identified in paragraph 43, questions surrounding the application of the CBAM cast doubts on the political feasibility of an installation-based approach. The next sub-section examines an alternative model; this involves a bottom-up focus on the equivalence of the Members' average sectoral carbon intensity and the application of product bans. This model would grant further flexibility to club Members and address the difficulties arising from the coexistence of price-based and non-price-based policies. However, it could not possibly address the issue of the climate club arrangements' coordination with the CBAM.

B. Bottom-Up Approaches Based on Average Sectoral Carbon Intensity, Product Standards and Bans

45. An alternative approach would involve references to the average sectoral carbon intensity of club Members. As seen above, this value is calculated by dividing the overall sectoral GHG emissions of a country by its specific sectoral production output; as such, this value measures the average amount of GHG emissions embedded in products. Environmental equivalence could be measured in the club by reference to this value; for instance, Members may commit to enact (different) policies with a view to achieving the same average sectoral carbon intensity all over the club. Alternatively, different Members could take on differentiated commitments relating to the further reduction of their own average sectoral carbon intensity.

46. This regulatory model is the bottom-up version of a top-down installation-based approach. Rather than harmonising facilities' emission limit values by reference to specific BATs/BACTs and recourse to permits, Members would agree on a roadmap to measure and reduce their own average sectoral carbon intensity. Members would still need to refer to BATs/BACTs to predict GHG emission outputs under different routes of production.⁵¹ Rather than setting harmonised mandatory emission limit values for their facilities, however, they could employ different tools to achieve their overall decarbonisation goals (i.e. to meet the targets for the reduction of their average carbon intensity). This could involve recourse to price-based policies (i.e. increasing carbon taxes or reducing the cap under cap-and-trade systems), subsidies for 'green' technologies, or non-price-based policies (i.e. emission limit values).

47. In decarbonisation terms, a bottom-up approach might prove less environmentally effective than a top-down installation-based approach. Predicting whether the average sectoral carbon intensity reduction targets would be met and adopting policies to achieve these targets would

⁵¹ BATs/BACTs would still play a role in the determination of production trends and patterns for each covered sector and route of production; further, they would help measure progress and would play an important role to inform regulatory action via emission limit values, subsidies or carbon prices.

involve complex measurements and evaluations. These limitations are typical of bottom-up approaches.

48. Turning to the applicable remedies, a bottom-up approach based on average sectoral carbon intensity would enable club Members to enforce bans against non-Member products whose embedded GHG emissions exceed the average club value. As already seen, average sectoral carbon intensity values are ultimately product values. If different Members committed to different reductions in their average carbon intensity, the scope of application of the bans would be symmetrically adjusted on a Member-by-Member basis. Recourse to bans, as explained in the previous sub-section, would be very effective in environmental terms.

49. Nonetheless, the application of these arrangements would not be fully even-handed. The reference value in the club or for different club Members would be an *average* value; *any* non-Member product whose embedded GHG emissions exceeded the club's average sectoral carbon intensity, by contrast, would be the object of a ban. This would be particularly problematic under two scenarios. First, it could be unfair in cases involving bans on specific products whose embedded GHG emissions are particularly high due to relevant processes and production methods, and relatively higher than the GHG emissions embedded in different categories of products in the sector. Second, reference to average sectoral carbon intensity values and recourse to product bans would be more problematic if very polluting and very 'green' routes of production coexisted in club Members. By way of example, a Member's relatively low average carbon intensity in the steel sector may be driven by massive investments in hydrogen-based technologies. However, several highly polluting blast furnaces may still be in operation in that Member. This could result in a situation where non-Member products manufactured in relatively 'clean' blast furnaces would be banned for exceeding the Member's average sectoral carbon intensity; nonetheless, the non-Member products' carbon intensity may be much lower than the one of products manufactured in blast furnaces within the club Member. This consideration militates in favour of measuring (and tailoring product bans to) average sectoral carbon intensity values under different routes of production.

50. This illustrates how a bottom-up approach would not achieve perfect even-handedness. This might be politically controversial for non-Members. Whether it would pose WTO law compatibility problems is unclear; at this stage, we are navigating uncharted waters. Nonetheless, this cannot be categorically excluded.⁵²

51. If compared to a top-down approach, a bottom-up model suffers from a few limitations. However, it would grant much more flexibility to club Members to achieve all relevant decarbonisation goals. First, the absence of harmonised and mandatory emission limit values for facilities under different routes of production would make this solution easier in political and administrative terms. Second, reference to average sectoral carbon intensity is considerably easier to reconcile with recourse to different policy instruments, and carbon pricing in

⁵² Again, the potential problem in WTO law terms would be that the arrangements fail to treat *all* 'environmentally equivalent' products in the same way.

particular. On these grounds, a bottom-up model based on average sectoral carbon intensity reduction commitments and product bans could be a feasible compromise.⁵³

52. Nonetheless, as anticipated in the previous section, a bottom-up approach to climate clubs leaves all questions surrounding coordination with the EU CBAM unanswered. Would the CBAM apply to products originating from other club Members? Would it have residual application, i.e. would it apply to products that are excluded from the sectoral coverage of the climate club? Would it apply to Member products whose embedded emissions are higher than the club's (or the importing Member's) average sectoral carbon intensity value? Would it apply to non-Member products which have not been the object of bans (i.e. products whose embedded emissions are lower than the club's average carbon intensity)?

53. The coordination of plurilateral climate club arrangements with the CBAM raises very complex questions of a political and administrative nature. The role of the CBAM in the context of climate club negotiations has remained totally unclear. Further difficulties are associated with the different policy rationale of the CBAM and non-carbon-pricing-based climate clubs. As explained before, economic and environmental equivalence and economic and punitive remedies pursue different goals and are rather difficult to reconcile.

54. This begs the question whether climate club arrangements may or should be informed by more flexible hybrid regulatory models. This is the last point addressed in this section.

C. Hybrid Approaches: Different Remedies Across The Club

55. The final potential scenario involves adherence to hybrid regulatory approaches. Under these flexible models, club Members would measure their own GHG emission output and take on commitments relating to the decarbonisation of their sectors. Price-based and non-price-based policies might be employed to achieve the relevant goals or targets. The environmental effectiveness of the arrangements would rest on the stringency and level of ambition of the targets or goals. Environmental equivalence between club Members might not be pursued, at all.

56. Hybrid models could easily involve recourse to different remedies by different Members of the club. By way of example, the CBAM could be employed by the EU. This would solve the problem of coordinating unilateral measures based on economic equivalence with broader plurilateral climate club arrangements. Other club Members may choose to have recourse to punitive tariffs or bans against all non-Member products or specific categories of products originating from non-Members.⁵⁴

⁵³ The caveats regarding anti-dumping and counter-vailing duties illustrated in the previous sub-section equally apply to a bottom-up approach based on average sectoral carbon intensity values, product standards and bans. See the clarification *supra* at note 48.

⁵⁴ I.e., depending on whether a state-based or a product-based perspective is followed and on the kind of remedies that are applied.

57. High levels of flexibility could be appealing for many jurisdictions. Hybrid approaches, however, cannot achieve authentic (environmental or economic) equivalence between club Members. In so far as they grant broad margins of manoeuvre to club Members, they may also turn out to be environmentally ineffective. Further, they might result in the imposition of WTO law compatible remedies.

58. References to 'explicit' carbon prices, 'implicit' carbon prices or product standards focusing on embedded GHG emissions are the only ways to ensure that the relevant arrangements are even-handedly applied within and out of the club.⁵⁵ However, as explained in the previous sections, both references to 'explicit' and 'implicit' carbon prices are associated with several problems; on these grounds, a focus on environmental equivalence and product standards is the most promising way forward.

59. Overall, it is fair to conclude that the further any climate club model gets from a focus on environmental equivalence and recourse to product standards, the less environmentally effective the arrangements will be and the more likely to be WTO law incompatible.

5. Findings and Conclusions

60. This input paper has examined different regulatory models for plurilateral climate clubs. It has focused on questions surrounding the environmental effectiveness and WTO law compatibility of potential arrangements. It has analysed different criteria for the establishment of (economic or environmental) equivalence between club Members, the prospective effectiveness of the arrangements, and potentially applicable remedies.

61. The second section has focused on climate club arrangements based on carbon pricing mechanisms (economic equivalence and 'explicit' carbon prices). It has illustrated the practical difficulties and environmental and WTO law shortcomings associated with this model. It has also highlighted that references to 'implicit' carbon prices are methodologically and technically unfeasible at the present stage.

62. The third section has employed a concise analysis of the proposal for a GSAA to highlight the problems associated with recourse to punitive tariffs in a climate club context. Further, it has emphasised that a state-based perspective and the imposition of tariffs against all products originating from non-Members would be highly problematic.

63. Most importantly, the fourth section has analysed top-down and bottom-up approaches based on environmental equivalence, product standards and bans. Unlike the hybrid models

⁵⁵ By contrast, recourse to tariffs, quotas and remedies which are applied to all products following a state-based perspective (e.g. tariffs against all steel and aluminium products originating from non-Members or non-market economies) cannot be even-handed in their application.

under analysis in the same section, top-down installation-based approaches or bottom-up models based on average sectoral carbon intensity reduction commitments could provide an effective way forward in the context of climate club negotiations. The former model would be more effective in environmental terms and more likely to be WTO law compatible. The latter would be more feasible in political and administrative terms.

64. Questions surrounding the coordination of plurilateral climate club arrangements with the EU CBAM have remained unclear at this stage. This may result in the design of hybrid and flexible climate club arrangements, allowing for recourse to different remedies by different Members. Hybrid approaches would be less environmentally effective, and may be problematic in WTO law terms. Even-handed arrangements based on environmental equivalence, product standards and bans provide the most promising way forward.