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The EU CBAM and a climate club: Synergies and potential obstacles for full integration

Discussion Paper

1 Introduction

International cooperation to mitigate climate change has come a long way since the Earth Summit in Rio de Janeiro thirty years ago. However, while international climate diplomacy has made considerable progress, current mitigation efforts are not enough to achieve the Paris Agreement's goal to limit global warming to 1.5°. In order to push towards a higher ambition in international climate policy, uni- and minilateral approaches are gaining prominence and are starting to be adopted. Carbon border adjustment mechanisms (CBAMs), for instance, serve as unilateral measures to protect domestic industries and aim to incentivise the introduction of carbon prices by trade partners. Climate clubs, in comparison, are multilateral in nature, as they aim to increase international climate cooperation through a coalition of similarly ambitious jurisdictions. As a partnership of equals, the outcome of a climate club's negotiation process is relatively open. In contrast, a country or jurisdiction that is implementing a CBAM defines rules unilaterally, thereby giving other countries or jurisdictions the option to benefit from an alignment to these rules in a subsequent step. Despite their intrinsic differences, both instruments have similar objectives and can effectively complement each other.

This discussion paper analyses potential synergies between climate clubs and CBAMs. It presents a case study of the concrete proposals currently debated for implementation: 1) the proposed European Unions' (EU) CBAM which looks set to be adopted by the EU Council and Parliament later this year and 2) the proposal for a climate club that was adopted by the G7 at their summit in June 2022. Chapter 2 introduces the two instruments and explains how they interrelate. Chapter 3 discusses potential obstacles to a full integration of both instruments. Chapter 4 shows how product-specific standards can be a tool at the intersection of both instruments to augment any synergies between them.

2 Climate clubs and the EU CBAM: Similar objectives, different approaches

2.1 Objectives of both instruments

The EU carbon border adjustment mechanism (EU CBAM) was proposed by the EU Commission in July 2021 as part of the "Fit for 55" policy package. It has the primary objective of preventing carbon leakage in energy-intensive sectors by protecting EU producers against competitors from non-EU countries that do not pay an equal carbon price.[1] Initially proposed to cover five carbon-intensive industrial sectors deemed to be at high risk of carbon leakage, the EU CBAM will apply to imports of these goods to the EU from non-EU countries. It will be levied on the importer,

[1] European Commission (2021). Proposal for a Regulation of the European Parliament and of the Council on establishing a carbon border adjustment mechanism. Last accessed July 19, 2022, from https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf

charging a carbon price on the embedded emissions (scope 1 and partly scope 2 and 3)[2] of these imported goods, equivalent to that which is paid by EU producers for allowances under the EU Emissions Trading System (EU ETS). The price differential in direct carbon costs is thus offset. This effectively reduces the risk of carbon leakage as both domestic and foreign producers face the same carbon price on their products in the EU market. The EU CBAM will gradually replace the free allocation of allowances as the primary policy measure to address carbon leakage in the covered sectors.

The EU CBAM is directly linked to the current market price of EU Allowances (EUAs) and will apply to imports of covered goods from all jurisdictions that neither participate in the EU ETS nor have an ETS that is linked to it. Installations from countries that charge an explicit carbon price on goods from the covered sectors will be able to deduct these costs from the CBAM levy. This provides an incentive for EU trade partners to introduce carbon pricing in their own jurisdiction, whether through a carbon tax or levy or an ETS.

The concept of a climate club has been discussed in the literature for some time and has been proposed by various actors.[3] Climate clubs can take many different forms, varying in the envisaged level of institutionalisation, membership size, and the associated policy scope. In contrast to the EU CBAM, a climate club involves only a defined group of countries that commit themselves to a set of common objectives, initiatives, and targets. From an economic perspective, cooperation in the club format should theoretically entail exclusive "club goods" that only members can benefit from that serve as an incentive for countries to sign on to the club's objectives. Falkner et al. (2022) distinguish between three ideal types of clubs: normative clubs in which members commit to certain climate policy targets; bargaining clubs that provide a forum for negotiations on common objectives, targets, and policies between members; and transformational clubs, which set legally binding rules for members and offer incentives in the form of club goods and the potential sanctioning of non-members.[4]

This paper refers to the idea of "an open, cooperative international Climate Club" as has been endorsed by the G7 countries at their summit in June 2022.[5] The G7 proposal envisages the climate club as "an intergovernmental forum of high ambition, […] inclusive in nature and open to countries that are committed to the full implementation of the Paris Agreement […]". While a certain degree of exclusivity is necessary to incentivise other countries to join the club, the G7 proposal explicitly frames it as an inclusive "climate alliance" that is open to all countries who share the same objectives and commitments. Based on a proposal by the German presidency, the G7 have pledged to establish a climate club by the end of 2022.[6] Given its current policy relevance, the G7 proposal for an international climate club (including potential membership beyond the G7 countries) forms the analytical focus of this paper.

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[2] Scope 1 refers to direct GHG emissions from sources that are owned or controlled by a company producing a product. This includes GHG emissions arising from fuel combustion and from certain physical or chemical processes. Scope 2 refers to indirect GHG emissions from the generation of electricity, heat, steam, or cooling consumed as an input in the production process. Scope 3 refers to other indirect GHG emissions that occur in a company's value chain from upstream and downstream activities.

[3] The most prominent proposal was put forward by Nordhaus, W. (2015). Climate clubs: Overcoming free riding in international climate policy. *American Economic Review, 105*(4), 1339-70.

[4] Falkner, R., Nasiritousi, N., & Reisch, G. (2022): Climate clubs: politically feasible and desirable?, *Climate Policy*, 22:4, 480-487, DOI: 10.1080/14693062.2021.1967717..

[5] G7 Statement on Climate Club (2022). Last accessed July 19, 2022 from https://www.g7germany.de/resource/blob/974430/2057926/2a7cd9f10213a481924492942dd660a1/2022-06-28-g7-climate-club-data.pdf?download=1

[6] Argus Media (2022). G7 to provide guidance on climate club. Last accessed August 1, 2022 from https://www.argusmedia.com/en/news/2353137-g7-to-provide-guidance-on-climate-club

According to the G7 statement, the climate club is to be built upon three pillars of international cooperation. These encompass elements from all three ideal types of clubs as defined by Falkner et al (2022).

1. **Increasing climate ambition among club members** by "making policies and outcomes consistent with our ambition, strengthening emissions measurement and reporting mechanisms, and countering carbon leakage at the international level." This could include an initiative to establish a common monitoring, reporting, and verification (MRV) framework and product-specific standards for determining the embedded emissions of certain industrial products (see chapter 4).
2. **Fostering industrial decarbonisation** through common initiatives such as the Industrial Decarbonisation Agenda[7] and the Hydrogen Action Pact.[8] This should allow club members to join forces in boosting the development and roll-out of low-carbon technologies. In the medium term, it should foster the creation of lead markets for low-carbon goods such as green steel, ammonia, or hydrogen.
3. **Boosting international climate ambition** through cooperation with partners beyond the G7, including with developing economies. This pillar underlines the inclusive character of the climate club by proposing "Just Transition Partnerships" with developing countries to support them in decarbonising their economies through financial and technical capacity support, as well as technology transfers.[9]

2.2 Commonalities and differences

CBAMs and climate clubs have a common high-level objective: raising the level of international climate policy ambition and creating incentives to do so. In addition, there are several more specific goals that both concepts have. In particular, we argue that the EU CBAM and the climate club as proposed by the G7 pursue the same two objectives: first, to level the playing field and protect the competitiveness of domestic industry that is subject to carbon pricing (or other non-price measures enforcing decarbonisation), thereby addressing the risk of carbon leakage; and second, to boost international decarbonisation efforts and to provide an incentive for other countries to increase their climate ambition. However, the order of priority of these two objectives differs between the EU CBAM and a climate club.

For **CBAM**, the first stated objective is the primary one, though setting incentives for other countries to introduce carbon pricing is also an explicit goal of the EU CBAM. The EU CBAM is explicitly designed to replace the free allocation of allowances as the chosen policy option to address carbon leakage. Considering the level of industrial decarbonisation that is required to meet the EU's ambitious climate targets, the free allocation of allowances has become an increasingly unsustainable approach that must be phased out.[10] The CBAM provides an incentive for EU trade partners to introduce carbon pricing and increase their own climate ambition as the

[7] G7 Industrial Decarbonization Agenda (2021). Last accessed August 1, 2022 from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/996388/EPD3_G7_Industrial_Decarbonisation_Agenda.pdf

[8] G7 Climate, Energy and Environment Ministers' Communiqué (2022). Last accessed August 1, 2022 from https://www.bundesregierung.de/resource/blob/974430/2044350/84e380088170c69e6b6ad45dbd133ef8/2022-05-27-1-climate-ministers-communique-data.pdf?download=1

[9] G7 Chair's Summary: Joining Forces to Accelerate Clean and Just Transition towards Climate Neutrality (2022). Last accessed August 1, 2022 from https://www.g7germany.de/resource/blob/974430/2057418/9a1d62b3c5710b4c1989f95b38dc172c/2022-06-27-chairs-summary-climate-neutrality-data.pdf?download=1

[10] See Agora Industry (2022). Getting the Transition to CBAM Right. Last accessed 12 August 2022, from https://www.agora-energiewende.de/en/publications/getting-the-transition-to-cbam-right/

amount of the CBAM levy is determined by two factors that can be directly influenced by exporting countries: the carbon intensity of goods and any applicable domestic carbon price. In this sense, the CBAM acts as a "stick", pushing the passthrough of the EU carbon price to imported goods from third countries by charging them at the border.

By contrast, a climate club as proposed by the G7 has the primary objective of furthering international cooperation on climate policy and increasing the level of ambition. This should be achieved by providing incentives ("carrots") for members in the form of "club goods". These do not necessarily need to be direct economic benefits such as preferential market access; they may also be non-material factors such as international recognition or the strengthening of bilateral cooperation with other club members. By striving towards a common level of policy ambition, a climate club also aims to level the playing field between members and reduce the risk of carbon leakage as a secondary objective. In the G7 proposal, this duality in objectives has been formulated explicitly: "We aim to establish a Climate Club to support the effective implementation of the Paris Agreement by accelerating climate action and increasing ambition, with a particular focus on the industry sector, thereby addressing risks of carbon leakage for emission intensive goods, while complying with international rules."[11]

However, the EU CBAM and an "open and inclusive" climate club as conceived in the G7 context are not perfectly compatible, as they are based on different policy frameworks and incentive structures. Suspending the EU CBAM within the club, while still aiming to counteract carbon leakage at the international level, requires inter alia a high degree of alignment with regard to climate ambition and common MRV standards among club members. Yet, an inclusive climate club aims to unite countries that are heterogenous in these aspects. This causes a conflict between the two instruments, presenting policymakers with a trade-off between the stringency of alignment and the potential scope of club membership.[12]

The climate club as proposed by the G7 is conceived as a multilateral forum for international cooperation and a partnership in which outcomes are obtained through an open negotiation process. It allows for common initiatives beyond (explicit) carbon pricing to create added value and mutual benefits for members and partner countries. This also significantly broadens the scope of potential club membership beyond jurisdictions that already have or are considering explicit carbon pricing schemes – including among the G7 where the introduction of a comprehensive carbon pricing system remains politically challenging in countries like the United States and Japan.[13]

To conclude, there are common elements that can create synergies and foster the objectives of both the EU CBAM and a climate club. As tools of international climate policy, they aim in the same direction and hence can coexist and complement each other. In theory, it would be possible to fully integrate both instruments by suspending the EU CBAM within a climate club. However, in the club format as proposed by the G7 this poses many hurdles, as is outlined in chapter 3. Nevertheless, a climate club may serve as a platform to cooperate on CBAM and facilitate its implementation.

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[11] G7 Statement on Climate Club (2022).

[12] See Mbengue, M. M., & Cima, E. (2022). "Clubbing in the Club": Could Climate-Related Trade Arrangements Set the Pace for Future Climate Cooperation? *American Journal of International Law*, *116*, 219-224.

[13] SWP (2022). The G7 Summit: Advancing International Climate Cooperation? Last accessed 2 August, 2022, from https://www.swp-berlin.org/en/publication/the-g7-summit-advancing-international-climate-cooperation

3 Requirements for suspending the EU CBAM within a climate club

The purpose of this chapter is to outline questions that members of a climate club would need to find a common answer to if they were to strive for a suspension of the EU CBAM within the club. A suspension would be understood to be the most comprehensive option for a full integration of the EU CBAM within a climate club as proposed by the G7, offering club members the attractive incentive of avoiding the CBAM charge on their exports. It is, however, beyond the scope of the discussion paper to propose a viable answer to these questions, as they would need to be negotiated under the current political circumstances. The purpose of raising these questions is rather to show how finding agreement on specific issues is challenging and what risks can arise from an incomplete integration of the two instruments.

In principle, there are three core criteria that would need to be instituted to suspend the EU CBAM within a climate club while still ensuring a level playing field: a mutually acceptable MRV framework for the embedded emissions of goods (section 3.1), a mutually acceptable carbon price level for relevant traded goods (section 3.2), and joint CBAM rules towards jurisdictions outside the club (section 3.3).

3.1 Mutually acceptable MRV framework for embedded emissions of goods

Monitoring, reporting, and verification (MRV) of plants' GHG emissions is an essential pillar of any carbon emissions regulation scheme. It provides the necessary data at the necessary level of granularity and reliability to ensure the system is transparent and credible.

A CBAM applies to products, not plants. In the case that production processes generate more than one product, products' embedded emissions must be estimated by "allocating" plant-level emissions to the relevant products according to plausible and transparent methods, and possibly, general rules. In this sense, a CBAM introduces a new MRV element – an attribution of emissions to specific goods, which may require changes in existing plant- or installation-based MRV systems. Moreover, for an effective CBAM, it must also be ensured that the regulated products can be "tracked" along the value chains to the importing countries' borders. Thus, it must be possible that "delivery packages" of imported goods are matched to the emissions in their production or production chain.

In the context of implementing the EU CBAM, it is therefore essential to firstly build a robust plant-level MRV framework and secondly a **framework for quantifying the embedded emissions of covered products**, to ensure that carbon content estimations and verification are performed based on the same principles and approaches across all jurisdictions exporting to the EU. In order to lift CBAM obligations between club members, the level of MRV harmonisation would need to go one step further and ensure **enforcement** of compliance obligations along the value chain.

The European Commission's CBAM proposal[14] outlines general principles of embedded emissions MRV, which third-country installations and CBAM declarants will have to comply with to import goods into the EU:

[14] European Commission (2021). Proposal for a Regulation of the European Parliament and of the Council on establishing a carbon border adjustment mechanism. Last accessed July 19, 2022, from https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf

1. Operators of third-country installations who produce goods for import into the EU are obliged to determine **embedded emissions**, using methods set out in Annex III to the CBAM proposal, by types of goods produced.
2. Either an operator or a CBAM declarant must ensure **verification** of embedded emissions in accordance with the principles set forth in Annex V to the CBAM proposal.
3. Accredited verifiers are those certified pursuant to Implementing Regulation (EU) No 2018/2067, and the European Commission's proposal envisages an **additional accreditation procedure** allowing national accreditation bodies to attest additional verifiers (Article 18).

The competent CBAM authorities (either national or a central CBAM authority, this is up for discussion in trilogue negotiations) are tasked with the enforcement of compliance obligations and oversight. The MRV requirements for the EU CBAM will be further detailed by the EU Commission in separate implementing or delegated acts. This presents an eventuality where MRV rules in relation to embedded emissions could be determined in consultation with prospective club members.

Jurisdictions with ETS or carbon taxes – but also some jurisdictions without a carbon price in place – already implement their domestic national (or sub-national) rules for calculating and reporting installation-level emissions, often also external verification procedures and accreditation of independent verifiers, which differ substantially across jurisdictions.[15] For exporting installations in these countries, the upcoming EU CBAM potentially implies doubling some monitoring and reporting and verification obligations – one set of procedures for national MRV, and another distinct set for CBAM. Therefore, harmonising MRV obligations among climate club members will already create benefits at the initial stage when CBAM applies, enabling the avoidance of a double MRV burden.

Fully harmonising MRV systems within a climate club may be difficult, as MRV provisions are usually based on countries' legal and institutional traditions.[16] It is thus reasonable to seek mutual acceptance rather than full alignment of MRV rules among club members. An analysis of differences between MRV systems and their relevance for linking concluded that, even in the case of full linkage between two or more ETSs, MRV frameworks do not need to be strictly identical, and specific elements could under certain conditions differ substantially without hampering the linking, provided the key elements are sufficiently aligned and the level of emissions calculated according to different sets of rules does not differ substantially.[17] Considerations around MRV alignment within a climate club with a joint CBAM would be quite similar to those for linking.

In practice, mutual acceptance of MRV rules between club members would entail the following:

1. A clear definition of the **MRV system scope and boundary** (product and emissions coverage);

[15] For a detailed overview of MRV systems differences, see Umweltbundesamt (2016). Essential Elements of a robust MRV-systems and analysis of their relevance for linking Emission Trading Schemes: Final report.
[16] Umweltbundesamt (2018). Analysis of Risks and Opportunities of Linking Emissions Trading Systems, p. 165. Last accessed 4 August 2022, from https://www.umweltbundesamt.de/publikationen/analysis-of-risks-opportunities-of-linking
[17] Umweltbundesamt (2016). Essential Elements of a robust MRV-systems and analysis of their relevance for linking Emission Trading Schemes: Final report, p. 60. Last accessed 4 August 2022, from https://www.umweltbundesamt.de/publikationen/essential-elements-of-robust-mrv-systems-analysis

2. Alignment of **embedded emissions estimation methodology** (agreeing on applicable standards, setting up MRV process, not only for installations' emissions, but also for attribution of emissions to products);
3. Agreement upon mutually acceptable **accreditation and verification procedures** (verification guidelines, accreditation rules, recognition of national accreditation bodies); and
4. Recognition of **enforcement and oversight structures** and procedures.

To lift the EU CBAM within a climate club, enforcing compliance obligations would not take place via EU CBAM procedures but would rather need to be ensured by national MRV systems. Weak national enforcement could raise the risk of emissions underreporting and an unfair advantage to producers from such jurisdictions.

3.2 Mutually acceptable carbon price level for relevant goods

To suspend the EU CBAM within a climate club, club members would need to agree on a mutually acceptable carbon price level. This could take the form of a general carbon price or, if this is not possible, a price level that applies only to relevant goods (i.e., goods subject to CBAM). A suspension is only feasible if a level playing field among club members can be assumed – which in turn assumes mutually acceptable carbon prices in all member jurisdictions. This requires alignment along three dimensions:

1. The **scope of covered emissions**, for example direct (scope 1) and indirect (scope 2 and 3) emissions;
2. The **carbon price level**: this can be expressed through the price level of a carbon pricing instrument with explicit prices such as a carbon tax/levy or an ETS. A consideration of non-pricing instruments such as mandatory emissions performance standards as "implicit" carbon prices under CBAM is rather unrealistic, as discussed below; and
3. The **type of regulation and applicable compliance thresholds**: how the price is charged (only explicitly or also implicitly) and who effectively pays it (e.g., taking into account the free allocation of allowances in some ETSs and any applicable exemptions/compensatory rebates from a carbon tax/levy).

In a climate club as proposed by the G7, these questions would be subject to political negotiations. While the first dimension is independent of the others, the second and third dimension are intertwined and have complex implications that make it challenging to find agreement among potential club members.

While full convergence of carbon prices is unlikely to be achieved, there is potential for the G7 countries to agree on a **minimum (explicit) carbon price for relevant goods** to be imposed by all club members.[18] However, a minimum carbon price that is significantly lower than the EUA price level would jeopardize the level playing field between regulated firms from different club members. If the EU CBAM were to be suspended in this scenario, a cost differential and associated carbon leakage risk would remain – an equivalent level of carbon leakage protection for EU producers would therefore not be guaranteed. However, it is worth noting that the

[18] A similar proposal was put forward by the German Federal Government (2021). Steps towards an alliance for climate, competitiveness and industry – building blocks of a cooperative and open climate club. Last accessed 16 August 2022, from https://www.bundesfinanzministerium.de/Content/EN/Downloads/Climate-Action/key-issues-paper-international-climate-club.pdf?__blob=publicationFile&v=4

effective risk of carbon leakage is difficult to estimate and depends on several other, industry-specific factors.[19]

Some voices suggest that CBAM could also be suspended for club members that impose only an "implicit" carbon price in the form of mandatory carbon intensity benchmarks. However, this presents prohibitively high challenges for ensuring a level playing field. There are two major issues with recognizing implicit carbon prices as equivalent to explicit prices for a potential suspension of the EU CBAM within a climate club.

The first and fundamental problem with including implicit carbon pricing is that it can never ensure a truly level playing field regarding the effective carbon costs industrial firms are facing. Entities paying an explicit carbon price would have a competitive disadvantage vis-à-vis firms facing only implicit carbon prices. This is because entities that are subject to an explicit carbon pricing instrument like a tax or an ETS face two types of carbon costs: first, the abatement cost for reducing emissions (e.g., by investing in energy efficiency), and second, the carbon price they are required to pay for the emissions that occur. In contrast, entities subject to a performance standard or other non-price measures only face the abatement cost. The remaining emissions – e.g., the emissions below the performance standard – are not priced. This difference in burden persists as long as the relevant processes are not 100% carbon free because any remaining CO2 emissions lead to required payment under explicit carbon pricing while not adding to the financial burden under implicit carbon pricing. Thus, an agreement on equivalency of non-pricing instruments with regard to the level of ambition (measured by the carbon intensity of products) inherently could not create equivalency in the effective cost burden imposed on regulated firms: an uneven playing field would necessarily remain.

The second challenge implied by considering implicit carbon pricing is finding a methodology to determine equivalence of non-pricing instruments with explicit carbon prices (i.e., to "monetize" the carbon cost of implicit carbon prices). Club members would need to agree on a methodology to determine and compare the implicit carbon price that is imposed on regulated industries. In the absence of explicit carbon prices, there is a lack of reliable and transparent indicators that could be drawn upon to accurately quantify the effective carbon costs that are imposed through non-pricing instruments.[20] More specifically, the challenge is to determine the effective cost burden that regulated entities face in order to comply with mandatory energy efficiency or carbon intensity standards, i.e., the marginal abatement cost per ton of CO2 in relation to the abatement necessary for compliance. The effective carbon price per ton of CO2 differs not only among countries, based on factors like the availability and cost of abatement technology, but also among regulated entities, as each firm starts from an individual abatement level.[21]

It seems practically impossible to develop a robust methodology for comparing implicit and explicit carbon prices. The impact of climate and energy policies other than a carbon price, such as energy or fuel taxes, regulatory measures, or subsidies for low-carbon investments, on the implicit carbon costs faced by regulated industries depends on the wider regulatory context and differs significantly between jurisdictions. These instruments show a broad range of sectoral scopes, may use different metrics or target years and have different compliance mechanisms.

[19] See ERCST (2021). Border Carbon Adjustments in the EU: A Sectoral Deep Dive. Last accessed 29 July, 2022, from https://ercst.org/wp-content/uploads/2021/03/20210317-CBAM-II_Report-I-Sectors.pdf
[20] See Agora Industry (2022). International climate cooperation for energy-intensive industry: A (realistic) proposal, pp. 17-22. Last accessed 5 August 2022, from https://www.agora-energiewende.de/en/publications/international-climate-cooperation-for-energy-intensive-industry/
[21] A notable example in this regard is the OECD Report on Effective Carbon Rates (2021). The methods used to calculate the effective carbon rates in jurisdictions with different instruments are controversial and rely on many (simplified) assumptions.

There is no level playing field regarding these measures even within the EU.[22] By consequence, there is no common benchmark that could be used for comparison to third countries. Including such implicit pricing policies under a CBAM would require full harmonization within the EU, which seems politically challenging. Hence, any political agreement on equivalency of non-pricing instruments with explicit carbon prices would be somewhat arbitrary and lacking a solid methodological foundation.[23] It can further be argued that the EU CBAM intends to provide a border adjustment mechanism for the carbon price only,[24] and does not consider other climate or energy policies. The EU also implements minimum levels for energy taxes and other price-based as well as command-and-control instruments not considered under the CBAM.

An agreement that includes implicit carbon pricing would also challenge the political and legal reasoning for the EU CBAM as an environmental policy tool that extends the carbon price imposed by the EU ETS to imports from third countries based on their carbon content, in accordance with the principles of equal treatment and non-discrimination.[25] A political agreement on equivalency of non-pricing instruments in a climate club would counteract this narrative because it would treat products from club members without explicit carbon pricing differently to those from jurisdictions outside the club. This would likely result in legal challenges of the EU CBAM and could potentially undermine its compatibility with WTO law, in particular the most-favoured nation principle. The same would also apply to a minimum carbon price within the club, as it would effectively result in discriminatory treatment of imports from third countries compared to those from club members regarding the applicable carbon price: outsiders would have to pay the full CBAM charge on their exports while club members could apply only the minimum carbon price to be exempted from the EU CBAM.

To conclude, suspending the EU CBAM within a climate club would ideally require a common, explicit carbon price on relevant goods that approximates the EUA price level. This would level the playing field between club members with respect to the explicit carbon prices facing regulated firms. However, given that not all G7 countries (and other potential club members) have an explicit carbon price in place, this will likely not be feasible in the medium term. Independent of a suspension of the EU CBAM, all countries and jurisdictions can fully discount any explicit carbon price charged domestically on the covered goods from the CBAM levy. Hence, there is still an incentive for potential club members to introduce carbon pricing in their own jurisdictions even if CBAM is not suspended within the club.

3.3 CBAM towards third countries

If the EU CBAM is to be lifted within a climate club, there would need to be common rules on the treatment of imports from third countries. A full integration of the two instruments would effectively turn the climate club into a "carbon customs union"[26] where members do not apply carbon border adjustments to each other's goods but have a common policy towards jurisdictions outside the club. A common CBAM with a common explicit carbon price applied by all club members would be required to truly level the playing field and guarantee an equivalent carbon leakage protection towards third countries – akin to the joint application of CBAM by the

[22] For example, the EU imposes only minimum levels for energy taxes that are not explicitly CO_2-based and differ substantially between member states.
[23] See also EC (2022). Study on the possibility to set up a carbon border adjustment mechanism on selected sectors, pp. 143-147. Last accessed 8 August, 2022, from https://op.europa.eu/en/publication-detail/-/publication/c274955e-b16b-11ec-83e1-01aa75ed71a1/language-en/format-PDF
[24] See EC (2021). Proposal for a Regulation of the European Parliament and of the Council on establishing a carbon border adjustment mechanism, 5.2.1.6, p. 111.
[25] Ibid., p. 0-3.
[26] See Meyer, T., & Tucker, T. N. (2022). A pragmatic approach to carbon border measures. *World Trade Review*, *21*(1), 109-120.

EU member states. Similarly, regulation on the required MRV and the methodology to determine the embedded emissions of imported goods would have to be based upon the common standards applicable within the club to ensure uniform conditions for importers.

Without a common CBAM framework towards outsiders, there would be risk of carbon leakage via other club members with no or a less stringent CBAM in place: once goods from third countries have entered the "carbon customs union", they would be able to circulate freely. This could distort club members' trade relations with third countries and potentially result in carbon leakage, redirecting exports of carbon-intensive goods from non-member countries to those club members with the least stringent CBAM conditions. If only a minimum CBAM charge is levied by all club members, equivalent to a common (minimum) carbon price within the club, the risks of the described adverse effects would need to be weighed against a possible price difference in CBAM levies.

In the absence of a common explicit carbon price levied by all club members, similar challenges of establishing the equivalence of implicit carbon pricing instruments occur, both in relation to third countries as well as among club members. A simple solution for club members without an explicit carbon price would be to charge the common CBAM levy at their border. However, this would likely be incompatible with WTO law, potentially constituting an illicit discrimination of foreign goods considering that domestic firms would not have to pay this explicit carbon price. Alternatively, these members could require the same level of implicit carbon pricing measures from third countries without explicit carbon prices as they apply domestically within their own jurisdiction.[27] This would lead to the same problems in determining equivalence of implicit carbon prices as discussed under 3.2, in addition to the adverse effects resulting from an unlevelled playing field towards trade partners within the club.

Due to these difficulties, finding an agreement on a common CBAM framework for trade partners outside the climate club may be even more challenging than finding agreement on a carbon price level within the club. However, lifting the EU CBAM within a climate club without a common approach towards third countries would jeopardise the effectiveness of the mechanism and could have unintended consequences such as carbon leakage and a redirection of trade flows.

4 Developing standards for embedded emissions of goods within a climate club

A complete integration of the EU CBAM and a climate club as proposed by the G7 seems elusive in the foreseeable future, for the reasons outlined in chapter 3. However, there is an intersection where both instruments could create synergies for each other. They could both contribute to strengthening international cooperation on industrial decarbonisation. The climate club could serve as a forum for international cooperation on standards for determining embedded emissions and MRV, providing the basis for setting emissions benchmarks for low-carbon or climate-neutral products like green hydrogen or ammonia and potentially green steel when the technology is more developed.

Currently, there are no common international rules to determine the embedded emissions of industrial products. While the EU CBAM rules could serve as a starting point for their creation, a climate club provides a forum for a negotiation process that is open and inclusive. As economies move towards climate neutrality, accurately determining a product's embedded carbon

[27] A similar proposal for a CBAM based on the carbon intensity of selected goods was put forward by U.S. Senator Sheldon Whitehouse in July 2022 and is currently being negotiated in the U.S. Senate ("Clean Competition Act").

emissions and proving that it fulfils internationally accepted emission standards will be increasingly important competitive advantages on international product markets.

Section 4.1 explains how a climate club could develop mutually acceptable (i.e., minimum) or even joint MRV standards for embedded emissions of goods. Section 4.2 outlines steps for an agreement on emission (performance) standards for low-carbon or climate-neutral products. As a potential additional step, club members could foster the development of lead markets for these green products. Ramping up markets for these products would be beneficial for club members producing these goods and for industrial decarbonisation in general. The possibility to participate in the development of common MRV and emissions standards that could eventually become internationally accepted standards beyond the climate club, is yet another benefit of being a club member.

4.1 MRV framework for determining embedded emissions of goods

The development of mutually acceptable MRV standards for embedded emissions of goods would be a practical first step for building cooperation between the members of a climate club. Mutually acceptable MRV rules would provide for consistent, transparent, and comparable GHG emissions data across club members, which is essential for the development of any joint climate initiative. The climate club could therefore create synergies with the EU CBAM. Exporters from jurisdictions that apply MRV standards aligned with the EU CBAM or recognized by EU, could use this data to simplify fulfilling obligations arising from the EU CBAM, as the emissions determined by these standards could be used as a basis to determine the amount of CBAM certificates that must be surrendered.

In addition, mutually accepted MRV standards for embedded product emissions would provide a robust basis for any further steps on cooperation on industrial decarbonisation, such as setting product-specific emissions performance standards and creating lead markets for low-carbon products. Common MRV rules could first be applied to a small range of selected products and later expanded in line with key cooperation areas within a club while considering lessons learned.

Currently, there are no common rules for determining embedded emissions of goods that are accepted by a larger group of jurisdictions. There are several voluntary international standards for assessing the "carbon footprint" of industrial products that allow for the estimation of embedded GHG emissions. The World Steel Association measurement standard and steel-specific ISO 14404 standard are route specific, and they cover both direct and indirect emissions, including selected supply chain emissions (scope 3). The series of EN19694 standards from the European Committee for Standardisation covers products from a wider spectrum of energy-intensive industries, including cement, lime, and aluminium production, and it provides a methodology for assessing emissions intensity that also covers direct and indirect emissions.[28] These standards are usually adopted by companies on a voluntary basis to receive reliable data on emission intensities and to plan energy and emissions reduction actions accordingly, with a view to gain a comparative advantage as a low-carbon leader on international markets. However, these standards do not necessarily meet the quality of MRV standards established under the EU ETS.

To establish a mutually acceptable MRV framework for products' embedded emissions, club members could draw upon these standards, but would need to agree on:

[28] IEA (2022). Achieving Net Zero Heavy Industry Sectors in G7 Members. Last accessed 16 August, 2022 from https://iea.blob.core.windows.net/assets/c4d96342-f626-4aea-8dac-df1d1e567135/AchievingNetZeroHeavyIndustrySectorsinG7Members.pdf

1. a definition of the MRV system scope and boundaries,
2. rules for emissions calculation and allocating them to specific goods,
3. accreditation and verification procedures, and
4. enforcement and oversight.

Defining MRV system scope and boundaries. As a first step, club members would need to agree on a set of products for which MRV would be mandatory and define system boundaries. It may be advisable not to use the entire list of products from the EU CBAM proposal, but rather to start with individual products in the focus of the climate club's cooperation. This could include products where (some) club members already have sectoral agreements on industrial decarbonisation, for example the EU-US Carbon-Based Sectoral Arrangement on Steel and Aluminium Trade.[29]

Club members would also need to agree on MRV system boundaries. Options include direct emissions only (scope 1), direct and indirect emissions (scope 2 and partial or full scope 3), or entire product life-cycle emissions. Including only direct emissions would make the respective MRV system simple, however, to align with the requirements under the EU CBAM, including some scope 2 and 3 emissions is necessary. Accounting for indirect emissions, especially emissions from electricity generation, would make the respective MRV system considerably more complex than the system required for lifting the EU CBAM within a club, but this would enable a far more accurate reflection of real embedded emissions of regulated products. Club members with a high share of renewables in their electricity mix may favour the inclusion of all scope 2 emissions for their products to qualify as less emission-intensive. Including scope 3 emissions requires a more complex MRV system, covering precursors (input materials), thus monitoring emissions along the value chain, and upstream processes. The respective framework regulation would need to include rules on aggregating data from different facilities as well as methods of allocating emissions to units of different product types at those facilities. As in CBAM, one should start with selected basic material products, involving only a small number of producing installations, and only selected precursors (e.g., no raw materials extraction) to keep the MRV process manageable.

Existing international standards could be used as an orientation as club members establish joint MRV standards for products' embedded emissions. For example, ISO 14404 for steel includes all supply chain steps starting from ore agglomeration, but it neither covers emissions from extraction and transportation of raw materials, nor upstream emissions from fossil fuel supplies.[30] Additional challenges may arise when basic materials or other inputs are supplied from countries outside the climate club with no MRV in place. Club members would need to decide on how to deal with negative emissions (carbon removals) and whether to allow for credits and offsets for the use of alternative fuels, the utilisation of waste heat, as well as other processes that lead to emissions reductions.

Alignment of embedded emissions estimation methodology. Club members would need to agree on applicable reporting standards. These would need to be selected depending on the products covered and the agreed upon scope of emissions to be regulated (direct/indirect, downstream, transport). It is also advisable to agree upon reporting infrastructure. This would include the use of tools (electronic template or an automated IT system if not provided by a

[29] European Commission (2021). Joint EU-US Statement on a Global Arrangement on Sustainable Steel and Aluminium. Last accessed 8 August 2022, from https://ec.europa.eu/commission/presscorner/detail/en/IP_21_5724

[30] IEA (2022). Achieving Net Zero Heavy Industry Sectors in G7 Members. Last accessed 18 August, 2022 from https://iea.blob.core.windows.net/assets/c4d96342-f626-4aea-8dac-df1d1e567135/AchievingNetZeroHeavyIndustrySectorsinG7Members.pdf

selected standard) for reporting emissions data to provide standardised, transparent, and traceable reporting. Club members could develop their own certification tools, for example a digital CO_2-product passport, simplifying information exchange and increasing transparency.

It would be advisable for regulators from club member jurisdictions to agree upon mutually accepted levels of uncertainty of the reported emissions data regarding the quantity (e.g., on acceptable metering devices and requirements for their installation and operation). Requirements for the use of calculation factors (emissions factor, calorific value, etc.) substantially impact the overall level of uncertainty of emissions determination. Club members should therefore aim to align on them as much as possible. Agreement could be on the use of certain standard factors or on national or regional factors from a mutually accepted source.

Agreeing on mutually acceptable accreditation and verification procedures. Club members would need to agree on accreditation rules for verifiers and quality standards for verification bodies to ensure the consistency and quality of verification services across all club members. This could lay the necessary basis for the mutual recognition of national accreditation bodies. Aligning accreditation rules with the EU's Accreditation and Verification Regulation (AVR) would allow accredited verifiers from club members to verify emission reports under the EU CBAM regulation, providing relief for national accreditation bodies of EU member states.

Recognizing enforcement and oversight structures. In the absence of a centralised enforcement mechanism such as that of the EU CBAM, club members would need to agree on mutually acceptable rules for MRV enforcement and oversight. Alternatively, they could designate a new or existing standing body, mandated with the provision of technical support and/or compliance oversight.[31]

4.2 Common product-specific emission standards

As a following step, a climate club could develop a roadmap to implement performance standards of products for which a common MRV framework for embedded emissions was successfully established. This would allow for a mutually accepted certification of low-carbon or even climate-neutral products like green hydrogen or ammonia within the climate club.[32]

A climate club would have to decide whether emission standards would be based solely upon direct emissions (scope 1) or include indirect and input emissions as well (scope 2 and 3). Emissions can only be included in the emissions standard if they are covered by the common (or mutually accepted) MRV framework. Club members would also need to determine the acceptable emissions level to fulfil the common performance standard. This might be a difficult negotiation if industries in different countries vary substantially in their emissions intensity.

If a climate club could agree on common emissions standards for certain low-carbon or climate-neutral products that would fall under a mutually accepted MRV framework, these certified products could be a relevant building block for industrial decarbonisation. Club members could support the ramp-up of lead markets for these products, creating demand for them, and providing necessary infrastructure until these markets are fully established. This could give

[31] Mehling, M., Van Asselt, H., Droege, S., & Das, K. (2022). The Form and Substance of International Cooperation on Border Carbon Adjustments. AJIL Unbound, 116, 213-218. doi:10.1017/aju.2022.33. Last accessed 16 August 2022, from https://www.cambridge.org/core/journals/american-journal-of-international-law/article/form-and-substance-of-international-cooperation-on-border-carbon-adjustments/93E335B483378B2E2EE5CE33E47BB7A6

[32] The International Energy Agency is advocating for common standards for low-carbon hydrogen and steel in its Breakthrough Agenda Report 2022, Last accessed 22 September 2022, from https://iea.blob.core.windows.net/assets/49ae4839-90a9-4d88-92bc-371e2b24546a/THEBREAKTHROUGHAGENDAREPORT2022.pdf

domestic firms the advantage of becoming the incumbent in the market and add another incentive for countries to join the climate club.[33]

A climate club could aim to support the creation of these lead markets, for instance through common rules, such as a mandatory minimum share of certified products for public procurement. Another option is to set economy-wide minimum targets for the use of these products. Club members could, for instance, decree that 10% of all hydrogen use needs to adhere to the club standards. Some products may require joint investment in infrastructure to ramp up the corresponding market.

For other products, for which creating emission standards is not a viable option, a climate club could also restrict access for carbon-intensive products or goods from countries with a high carbon intensity, as proposed by the U.S.-EU Joint Statement for Steel and Aluminum.[34] These carbon intensity thresholds should then also be binding for production within the club and could increase in ambition over time to work towards the decarbonisation of these sectors.

5 Conclusion

This discussion paper has provided an overview of how the two instruments, CBAM and climate clubs, can connect with each other. Both instruments have similar goals, can complement and reinforce each other, and have high potential to create synergies. The main difference between them is that a climate club is a multilateral partnership in which outcomes are negotiated openly, whereas a CBAM risks being a unilateral instrument that provides incentives for trade partners to align with the already fixed CBAM rules. While a CBAM provides a "stick" to trade partners by extending a domestic carbon price to cover imported goods, a climate club offers benefits as "carrots" to prospective members. Chapter 3 discussed the challenging nature of suspending the EU CBAM within a climate club. In particular, an ambitious explicit carbon price would be necessary in order to lift the EU CBAM without jeopardizing its objectives. Note that there is a trade-off between ensuring a true level playing field for competing firms and tolerating a certain level of divergence in policy ambition and effective carbon costs imposed on regulated industries. Any initiative for international climate cooperation needs to balance the risk of carbon leakage and potential loss of competitiveness with the benefit of higher ambition (and broader participation).

Chapter 4 proposed a more feasible approach for a climate club in the G7 context (or broader) that could create synergies with the EU CBAM. The club could focus on decarbonisation of specific industrial products, aligning the members' MRV frameworks and establish methods for attributing emissions to products, creating labels or certificates for embedded emissions, and developing common emissions standards for these products. Club members would gain a competitive advantage for certified products on international markets. This would be further reinforced if a climate club pushed for the development of lead markets for these products, for instance by setting rules for public procurement. While the idea of establishing a climate club is not new, the "sticks" for EU trade partners that come with the introduction of the EU CBAM might increase momentum for stronger multilateral climate cooperation between ambitious jurisdictions and thereby set in motion the formation of a climate club.

[33] See Agora Industry (2022). International climate cooperation for energy-intensive industry: A (realistic) proposal. Last accessed 16 August 2022, from https://www.agora-energiewende.de/en/publications/international-climate-cooperation-for-energy-intensive-industry/

[34] Last accessed 15 August 2022, from https://www.commerce.gov/sites/default/files/2021-10/US-EU-Joint-Deal-Statement.pdf

The U.S.-EU Joint Statement on Steel and Aluminum from October 2021 could provide a starting point for cooperation. In it, both jurisdictions agree to cooperate on decarbonising both sectors, while considering restricting market access to products from the two sectors that do not meet the yet undetermined low-carbon intensity standards.[35] While the agreement focusses on reducing international overcapacities, the urgency of the matter can help set in motion the transition towards low-carbon aluminium and steel sectors. Focussing on these two sectors may ease the start of a conversation on MRV standards between the U.S., the EU, and all other jurisdictions interested in cooperating on industrial decarbonisation.

Synergies between the EU CBAM and a climate club go beyond working on the decarbonisation of specific industrial products. A club could, for instance, develop a framework on how revenues from the EU CBAM (and other potential border carbon adjustment mechanisms) should be used. This would increase international acceptance of the EU CBAM and provide funding for projects that matter to club members. One option is to support establishing MRV capacities for EU CBAM compliance in developing countries. Another possibility is to invest in infrastructure needed for industrial decarbonisation. This could be related to the initiative outlined in chapter 4.

[35] Ibid.

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