

Climate Clubs: Chances and Pitfalls

Multilateral climate action must ensure not to displace industries

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Prompted by the UN Climate Conference COP26, discussions on ways to take on the deficiencies of global climate action have intensified. While the EU Commission has proposed a unilateral carbon border adjustment mechanism (CBAM) to protect its industries in view of higher climate efforts, others – including the German Government – are advocating a multilateral climate club of “willing” countries that set a joint minimum carbon price. cep identifies the requirements a climate club must meet to avoid ultimately displacing industries.

Key Propositions

- ▶ In principle, multilateral climate action in form of climate clubs can effectively curb global carbon emissions since the club members commit to higher climate protection ambition.
- ▶ However, the displacement of carbon-intensive production to third countries with weaker climate action (“carbon leakage”) must be avoided since otherwise value creation within the club would be lost while at the same time global CO₂ emissions increase, which means climate clubs must be “carbon leakage-proof”.
- ▶ But currently discussed climate clubs with a minimum carbon price and a CBAM at the border to non-members will lead to carbon leakage from the EU to other club members (“internal carbon leakage”) if the price of allowances in the EU Emissions Trading System (EU-ETS) is higher than the club’s joint minimum price.
- ▶ Internal carbon leakage can be avoided by applying (1) a multilateral ETS setting a uniform carbon price or (2) for countries with an ETS: a climate tax (CT) on domestically produced or imported goods destined for consumption within the club – combined with the free allocation of ETS-allowances for companies at risk of carbon leakage; for other club members: a minimum carbon price combined with a CBAM to non-members.

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Executive Summary

Context

- ▶ In view of the targets of the UN Paris Climate Agreement to limit global warming to “well below 2°C” and, if possible, 1.5°C compared to pre-industrial levels, the UN Climate Conference in Glasgow in November 2021 undertook first steps towards the creation of an international “climate club” (CC).
- ▶ A CC shall overcome the weaknesses of current global climate action and go beyond the EU’s unilateral implementation of a carbon border adjustment mechanism (CBAM) that has caused adverse reactions from trade partners.

Weaknesses of Global Climate Action

- ▶ The EU’s strict climate provisions – particularly the increasing costs for allowances pursuant to the EU Emissions Trading System (EU-ETS) –lead to significant disadvantages for EU producers in international competition, with respect to both imports on EU markets and exports to non-EU markets.
- ▶ These competitive disadvantages can shift production to countries with less stringent climate policies. The consequence would be a loss of value creation and jobs in the EU as well as higher emissions globally, as production outside the EU is mostly subject to less stringent requirements (“carbon leakage”).

Deficient EU Response: Carbon Border Adjustment Mechanism (CBAM)

- ▶ Currently, EU producers at risk of carbon leakage are allocated a portion of allowances free of charge – proportional to historical production levels and a product specific benchmark based on the 10% most efficient installations. Given rapidly rising allowance prices carbon leakage protection is incomplete.
- ▶ Therefore, the EU Commission has proposed the unilateral implementation of a “carbon border adjustment mechanism” (CBAM) in the form of a “notional ETS”. It shall gradually replace the free allocation of EU-ETS allowances which are to be phased-out. A notional carbon price that mirrors the EU-ETS allowance price shall be levied on imports in order to create a level playing field in the EU internal market. However, no compensation for the phasing-out of free allowances is envisaged for EU exports. Hence, EU export companies would face an increased competitive disadvantage in world markets.
- ▶ Because of its limited scope, a unilaterally introduced CBAM for the EU can only make a limited contribution to achieving global emissions reductions. It is detrimental to climate protection, since it weakens the willingness of countries to cooperate, and bears considerable risks of international trade conflicts. Hence, instead of a unilateral introduction of a CBAM, the EU should strive for multilateral cooperative solutions that foster higher global abatement efforts and the prevention of carbon leakage.
- ▶ An alternative to CBAM is a carbon consumption tax (CCT) on carbon emissions embedded in consumer goods. Complementing the free allocation of allowances, it would apply to both imported and domestically produced products that are consumed in the EU. A CCT can be designed as an indirect tax like excises duties or VAT. This option would provide carbon leakage protection also in world markets.

Pragmatic “Second-best” Solution: Multilateral Climate Club

- ▶ A global ETS as the first best solution or a global carbon tax are unrealistic for the time being. A pragmatic interim solution could be multilateral cooperation of “willing” countries within a CC. These countries, the club members, would raise their “Nationally Determined Contribution” (NDC) pursuant to the Paris Agreement to levels better in line with the Paris climate targets.
- ▶ The rationale of a CC is to reciprocally reduce the carbon leakage risk among its members, including the loss of protection for EU exporters and the risk of international trade conflicts in the case of CBAM.
- ▶ An effective and efficient CC could be formed by linking countries by an ETS. It would reduce GHG emissions and prevent carbon leakage. Unfortunately, it is not feasible in the short-term as it would require the establishment of emission trading systems in all participating countries.

- ▶ The CC proposals currently discussed have serious flaws. Especially, most of them do not address the fact that the EU-ETS allowance price is set by market forces and therefore can vary significantly over time and rise above the minimum price constitutive for a CC. Thus, the competitive disadvantage resulting from higher carbon costs for EU industry compared to other club members is overlooked.

Recommendation: “Carbon leakage-proof” Climate Club (CLP-CC)

- ▶ The CLP-CC eliminates climate-related competitive distortions both within the CC and vis-à-vis non-members that work regardless of whether CC members have introduced an ETS or not. It reduces emissions globally and prevents carbon leakage between CC countries. Finally, it sets incentives for non-CC countries to join because they no longer gain competitive advantages in CC markets by foregoing climate protection.

Elimination of climate-related competitive distortions within the CC:

- ▶ The CC agrees on a minimum price for sectors at risk of carbon leakage which all CC members commit to, regardless of whether they have introduced an ETS or not. It is up to the CC members how they guarantee the minimum price.
- ▶ Members that have not introduced an ETS can, e.g., introduce a carbon tax or set shadow prices, as is currently being considered in the US.
- ▶ Members that have introduced an ETS, like the EU, take two measures in parallel:
 - They allocate the required ETS allowances to their domestic companies in sectors at risk of carbon leakage free of charge. This means extending the free allocation beyond the current level. Consequently, these companies do not incur any climate protection costs through the ETS, regardless of whether they produce for the domestic market, for markets in other CC countries or for the rest of the world.
 - They levy a “climate tax” (CT) in the amount of the minimum price. The CT is charged to all producers in sectors at risk of carbon leakage to the extent that they produce for the domestic market or export to other CC countries. Only exports to non-CC countries are exempt from the CT (cf. below).
- ▶ Consequently, these enterprises have emission costs only in the amount of the minimum price. All companies in sectors at risk of carbon leakage have the same climate protection costs in CC markets.

Protection against climate-related competitive distortions vis-à-vis third countries

- ▶ The minimum price leads to climate protection-related competitive disadvantages vis-à-vis competitors from non-CC countries that have introduced less stringent climate protection regulations or none at all. This applies both to the markets of the CC (import competition) and to non-CC markets.
- ▶ Members that have not introduced an ETS,
 - can compensate for the competitive disadvantage on their domestic markets by applying a CO₂ border adjustment (CBA) on imports;
 - can prevent competitive disadvantage in non-CC markets by not applying their climate protection regulations to exports or by granting export rebates according to rules agreed upon in the CC.
- ▶ Members that have introduced an ETS like the EU,
 - can compensate for the competitive disadvantage on their domestic markets by levying the CT also on imports from non-CC countries;
 - suffer no competitive disadvantage on non-CC markets, because ETS allowances are allocated for free and exports to non-CC countries are exempted from the CT.
- ▶ To increase the incentives to join the CC, additional benefits of club membership can be added by trade-facilitating policies. This solution can be implemented in the short term and could protect the more ambitious countries like the EU from carbon leakage.

1 Introduction

In view of the targets of the UN Paris Climate Agreement¹ to limit global warming to “well below 2°C” and, if possible, 1.5°C compared to pre-industrial levels (“Paris climate targets”), the EU has increased its efforts to reduce emissions of greenhouse gases (GHG) like CO₂ (“decarbonisation”). In the run-up to the UN Climate Conference in Glasgow in November 2021 (COP 26) the EU tightened its climate targets for achieving “climate neutrality” by 2050 and reducing GHG emissions by 55% compared to 1990 levels by 2030.² In order to adapt the entire EU climate and energy policy in this respect, the EU Commission published the “Fit for 55” package of legislative proposals in July 2021.³ However, ambitious climate policies pursued only by a limited number of countries, such as the EU Member States, will not succeed in reducing global emissions to the level considered necessary. Furthermore, since other countries profit from such abatement efforts, they have no incentive to enact comparable measures themselves. On the contrary, “free riders” gain a competitive advantage in the international trade in carbon-intensive goods at least in the short term.

The immense obstacles to global climate action by all countries have, once again, become apparent at COP26. However, to gradually overcome this fundamental deadlock and create a level playing field between countries regarding the costs of climate policies, e.g. resulting from putting a price on GHG emissions (“carbon pricing”), efforts are intensifying to foster international cooperation at least at bilateral and multilateral level. For example, in October 2021 the European Commission announced its intention to organise an international meeting in 2022 dedicated to “building a coalition of trade ministers across the globe who want to take action” to promote trade in climate-friendly goods and services.⁴ The G7 Finance Ministers agreed “to coordinate efforts on the pricing of carbon to mitigate emissions, and to explore international solutions to prevent carbon leakage.”⁵ Furthermore, the Director-General of the World Trade Organisation (WTO) proposed that the WTO, the International Monetary Fund, the World Bank and the OECD jointly develop a common methodology for a global carbon price.⁶ At COP26, the German Chancellor Angela Merkel made a “clear plea for carbon pricing” which “must be developed together with many other countries worldwide”.⁷ Furthermore, the EU and the US announced their intention to negotiate a new arrangement to discourage trade in high-carbon steel and aluminum which will be open to any interested country to join.⁸ This “Global Sustainable Steel Arrangement” aims (1) to reduce GHG emissions from steel and aluminum production in the participating countries and (2) to eliminate “global market distortions” by creating a level playing field with other countries regarding abatement costs.

¹ UNFCCC, [Paris Agreement of 12 December 2015](#), Art. 2 (1) (a) [all links last accessed on 09 November 2021].

² UNFCCC, [Update of the Nationally Determined Contribution of the European Union and its Member States of 17 December 2020](#); Regulation (EU) 2021/1119 of 30 June 2021 establishing the framework for achieving climate neutrality (‘European Climate Law’), Art. 2 (1) and Art. 4 (1).

³ EU Commission (2021), Communication COM(2020) 550 of 14 July 2021, [‘Fit for 55’: delivering the EU’s 2030 Climate Target on the way to climate neutrality](#).

⁴ EU Commission (2021), [Speech by Executive Vice-President Dombrovskis at the EU Sustainable Investment Summit](#); Euractiv of 8 October 2021, [Brussels seeks ‘international coalition’ on trade in green goods](#).

⁵ UK Government (2021), [G7 Finance Ministers agree to work together to address global supply chain pressure](#). For a detailed discussion of “carbon leakage” see section 2.2.

⁶ Financial Times of 14 October 2021, [Ngozi Okonjo-Iweala: Adopting a global carbon price is essential](#); The Independent of 19 October, [Create global price for carbon, WTO boss urges international leaders](#).

⁷ Bundeskanzleramt (2021), [Speech of Chancellor Angela Merkel of 1 November 2021 at the World Leaders Summit of COP26 in Glasgow](#).

⁸ White House (2021), [Joint US-EU Statement of 31 October 2021 on Trade in Steel and Aluminum](#); [Remarks by President Biden and European Commission President Ursula von der Leyen on U.S.-EU Agreement on Steel and Aluminum Trade](#).

The EU-US initiative can be seen as a first step towards the creation of an international “climate club”.⁹ As early as August 2021, the German Government adopted a “key-issues paper” advocating for the formation of a “climate club” between the EU and third countries such as the US, Japan and China and invited the EU Commission to provide institutional support.¹⁰ In the run-up to COP26, the European Parliament called “on the Commission to engage with other major CO₂ emitters to create an international climate club of countries leading the way to climate neutrality.” Core elements of such club should be the establishment of “common goals and standards for the reduction of GHG emissions”, “comparable explicit and implicit CO₂ prices in energy and industrial sectors” and the “protection of countries that are willing to implement climate protection measures from the disadvantages of international competition.”¹¹

Given these multiple initiatives and intensifying discussions, this cep**Input** analyses the essential challenges of global climate action and various proposals for fostering international cooperation through “climate clubs”. Section 2 explains the lack of effectiveness and efficiency of global climate action. In this context, section 3 assesses the EU Commission’s proposal of July 2021 for a unilateral “carbon border adjustment mechanism” (CBAM) which aims at pricing carbon-intensive imports from countries with “lax” climate policies.¹² Section 4 outlines the – as yet only theoretical – first-best solution of a global carbon price under a worldwide emissions trading system (ETS). The main – more pragmatic – proposals for climate clubs currently being discussed are presented in section 5 and assessed in section 6. In view of the different shortcomings of these proposals¹³, section 7 presents two alternative designs for “carbon-leakage proof” climate clubs. Section 8 concludes with a brief summary.

⁹ Euractive of 1 November 2021, [EU and US slash tariffs, start cooperating on ‘green steel’](#).

¹⁰ Bundesfinanzministerium (2021), Eckpunkte eines kooperativen und offenen Klimaclubs [German Government (2021), [Key-issues Paper: Initiative for a Multilateral Climate Club](#)].

¹¹ European Parliament (2021), [Resolution of 21 October 2021 on the 2021 UN Climate Change Conference in Glasgow, UK \(COP26\) \(2021/2667\(RSP\)\)](#), No. 20.

¹² EU Commission (2021), Proposal COM(2021) 564 of 14 July 2021 for a Regulation establishing a carbon border adjustment mechanism [CBAM Proposal COM(2021) 564]; see also Jousseume, M. / Menner, M. / Reichert, G. (2021), CBAM: Damaging to Climate Protection and EU Export Industries [cepStudy (2021), CBAM].

¹³ These shortcomings are widely overseen and not publicly discussed by proponents of a climate club. See as recent example the latest Annual Report of the German Council of Economic Experts: Sachverständigenrat (2021), [Jahresgutachten 2021/2022](#).

2 Background: Weaknesses of Global Climate Action

2.1 Tragedy of the Commons: Different Ambition Levels and Free Riding

Given that the global carbon budget compatible with the Paris climate goals is a non-excludable common good, countries have an incentive to rely on the GHG emissions reductions of others without implementing comparable abatement measures themselves (“tragedy of the commons”):¹⁴ A country’s GHG abatement effort – or “Nationally Determined Contribution” (NDC) pursuant to the Paris Agreement – benefits all countries, whether they abate or not, but costs accrue only to the abating country. Thus, at least in the short term it pays off to act as a “free rider” by keeping one’s own NDC as low as possible. This is the case even if in the long- term cooperation would lead to a more effective and efficient reduction of GHG emissions to the benefit of all countries. The free-rider problem is revealed particularly by the fact that on a global scale the pricing of GHG emissions diverges significantly.¹⁵

Consequently, emissions are primarily reduced in countries with stringent climate policies and high carbon prices, rather than where emissions can be avoided as effectively and cheaply as possible. As a result, global efforts for GHG mitigation are neither as effective nor as efficient as they could be. It is unsurprising therefore that current NDCs do not add up to the total amount of GHG reductions climate which scientists consider necessary to meet the Paris climate targets.¹⁶

2.2 Carbon Leakage: Ambitious Countries and the Climate Lose

Non-uniform carbon pricing worldwide increases the risk that carbon-intensive production is transferred, from countries with high carbon prices to third countries with less ambitious climate policies, in general, and with no or low carbon prices, in particular (“carbon leakage”). For example, the EU’s strict climate provisions – particularly the increasing costs for allowances pursuant to the EU Emissions Trading System (EU-ETS) – lead to significant disadvantages for EU producers in international competition. This applies to domestic producers that face competition from imports on EU markets and to exporters on non-EU markets.

Consequently, EU products that bear carbon costs are substituted by cheaper imports which “embed” more GHG emissions caused during their manufacture. Furthermore, EU exports lose market share on the world market. As a result, carbon leakage has a negative impact on growth and employment in the EU and also undermines its abatement efforts as it increases global GHG emissions.¹⁷

“Direct carbon leakage” takes place when EU industries lose market share to competitors from third countries, either in the EU market through higher imports into the EU or in the world market when EU exports are replaced by more carbon-intensive non-EU products. “Indirect carbon leakage” occurs when reduced demand in the EU for fossil fuels lowers their price, leading to an increased use of fossil fuels in countries with less ambitious climate policies.¹⁸

¹⁴ Nordhaus, W. (2015), [Climate Clubs: Overcoming Free-riding in International Climate Policy](#), American Economic Review 105 (4), pp. 1339–1370 [Nordhaus, W. (2015)].

¹⁵ Taxes on carbon emissions vary from less than 1 USD per tonne in the Ukraine to 137 USD in Sweden, allowance prices in ETSs vary from 1 USD per tonne in Kazakhstan and Shenzhen (China) to 50 USD in the EU-ETS by 1 April 2021, see World Bank (2021), [State and Trends of Carbon Pricing 2021](#), p. 29 et seq.

¹⁶ UNFCCC (2021), [NDC Synthesis Report of 17 September 2021](#), p. 5 et seq., No. 10–15.

¹⁷ See Bonn, M. / Reichert, G (2018), Climate Protection by way of the EU ETS, [ceplinput 03/2018](#), section 2.4.

¹⁸ Wissenschaftlicher Beirat (2021), Study.

Currently, the EU provides for two different instruments to reduce the risk of carbon leakage:

- (1) Within the EU-ETS for carbon-intensive industries and energy producers, installations at risk of carbon leakage receive a portion of allowances free of charge.¹⁹ The number of free allowances is proportional to historical production levels and a product specific benchmark based on the 10% most efficient installations.²⁰
- (2) With respect to electricity prices increased by the EU-ETS, Member States can pay energy-intensive companies a – partial and gradually decreasing – “electricity price compensation”.²¹

However, there is the proposal to tighten the benchmarks and to reduce the free allocation by 25% if an installation, that is obliged to carry out an energy audit, fails to reduce GHG emissions as much as is recommended by the audit.²² For most firms only a part of the allowances which they need are allocated free of charge. Given rapidly rising allowance prices,²³ carbon leakage protection is currently incomplete.

¹⁹ EU-ETS Directive [2003/87/EC], Art. 10a; see Bonn, M. / Reichert, G. (2018), Climate Protection By Way of the EU-ETS, [cepInput 03/2018](#), section 2.4.

²⁰ EU-ETS Directive [2003/87/EC], Art. 10a (6); see [cepInput 03/2018](#), section 2.5.

²¹ EU-ETS Directive [2003/87/EC], Art. 10a (6) ; see [cepInput 03/2018](#), section 2.5.5; Bonn, M. / Reichert, G. / Voßwinkel, J. (2019), Reform der Strompreiskompensation, [cepStudie](#).

²² EU Commission (2021), Proposal COM(2021) 551 of 14 July 2021 for a Directive amending EU-ETS Directive 2003/87/EC, Art. 1 No. 12 lit. a in conjunction with Energy-Efficiency-Directive [2012/27/EU], Art. 8(4).

²³ Ember, [Carbon Price Viewer](#).

3 Deficient EU Response: Carbon Border Adjustment Mechanism (CBAM)

3.1 “Notional ETS” versus Carbon Consumption Tax (CCT)

In response to the weaknesses of global climate action, the EU Commission has proposed the unilateral implementation of a “carbon border adjustment mechanism” (CBAM) gradually replacing the free allocation of EU-ETS allowances which are to be phased-out.²⁴ The Commission proposed a “notional ETS”; another option being discussed is a carbon consumption tax (CCT).²⁵ Below, we introduce these two main CBAM options and then go on to evaluate their ability to protect companies in countries forming a climate club against carbon leakage to third countries outside the club.

- With a **notional ETS** a carbon price mirroring the EU-ETS allowance price is applied to imports of certain products covered by the EU-ETS that are at high risk of carbon leakage – iron, steel, cement, fertiliser, aluminium, electricity – in order to create a level playing field in the EU internal market for competing EU products. However, no border adjustment, e.g. in the form of “export rebates”, is envisaged for EU exports with which they would be relieved from the cost of EU-ETS allowances and put on an equal footing in world markets with products from third countries.
- A **carbon consumption tax (CCT)** would be a domestic tax based on the embedded carbon emissions and applied to products consumed in the EU – regardless of whether they were imported or produced domestically. All EU-ETS allowances needed by companies at risk of carbon leakage are allocated to them free of charge up to a benchmark²⁶, which would enable fair competition in the EU market and allow carbon costs to be passed on to consumers (“pass-through”). A CCT could be designed as an indirect tax like excise duties or VAT. Since by its nature such a tax would not apply to EU exports, the free allocation of allowances would also provide carbon leakage protection in world markets.

3.2 Assessment

A CBAM could only make a limited contribution to achieving worldwide emissions reductions, as it does not address one of the main sources of carbon leakage, i.e. indirect carbon leakage.²⁷ Therefore, the French *Conseil d’analyse économique* (Council of Economic Analysis, CAE) favours “climate clubs”²⁸ over CBAMs which are deemed “too complex and carrying real risks of commercial retaliation” by third countries.²⁹ The German *Wissenschaftliche Beirat beim BMWi* (Scientific Council to the Ministry for Economics, BMWi-Beirat) also argues that a unilateral introduction of a CBAM would be detrimental

²⁴ CBAM Proposal COM(2021) 564] in conjunction with COM(2021) 551, new Art. 10a (1a).

²⁵ For an in-depth analysis see [cepStudy](#) (2021), CBAM, particularly sections 3.2.1.3, 3.2.1.4 and 6.

²⁶ See Neuhoff, K. et al. (2016), [Ergänzung des Emissionshandels: Anreize für einen klimafreundlicheren Verbrauch emissionsintensiver Grundstoffe](#), DIW Wochenbericht Nr. 27/2016 of 6 Juli 2016 [Neuhoff, K. et al. (2016)]; Pollit, H. / Neuhoff, K. / Lin, X. (2019), [The impact of implementing a consumption charge on carbon-intensive materials in Europe](#), Climate Policy, Vol. 20, Supplement 1; Ismer, R. / Neuhoff, K. / Pirlot, A. (2020), [Border Carbon Adjustments and Alternative Measures for the EU ETS: An Evaluation](#), DIW Discussion Papers 1855.

²⁷ Haut Conseil pour le Climat (2020), [Maîtriser l’empreinte carbone de la France](#), p. 49; [cepStudy](#) (2021), CBAM, section 5.

²⁸ This proposal is also recommended by the French Economic Council for Sustainable Development, see CEDD (2019), [Mesures d’inclusion carbone : Des propositions à la mise en œuvre](#), [Synthèse n°39](#), p. 6.

²⁹ CAE (2017), Trade and Climate: Towards Reconciliation, [Les notes du CAE n°37](#), pp. 9 and 12.

to climate protection, since it will weaken the willingness of countries to cooperate.³⁰ There is considerable risk of international trade conflicts if the EU unilaterally imposes a notional ETS.³¹

But even if a CBAM for imports at the border could be designed to be compliant with WTO law, EU export companies will be entirely unprotected against carbon leakage in world markets if, as proposed, the free allocation of EU-ETS allowances would be gradually phased-out. Since no compensation, e.g., in the form of export rebates is envisaged, EU export companies would face increasing carbon costs while many of their competitors would not. Even if a compensation were to be introduced later in the ongoing legislative process, there is a considerable risk that it would breach WTO law or at least stir up trade conflicts.³² Hence, instead of a unilateral introduction of a CBAM, the EU should strive for multilateral cooperative solutions that foster higher global abatement efforts and the prevention of both direct and indirect carbon leakage.

³⁰ Wissenschaftlicher Beirat beim BMWi (2021), Ein CO₂-Grenzausgleich als Baustein eines Klimaclubs [BMW-Beirat (2021), [Study](#)], p. 32.

³¹ See, e.g., [John Kerry warns EU against carbon border tax](#), Financial Times of 12 March 2021; [China says EU's planned carbon border tax violates trade principles](#), Reuters of 26 July 2021.

³² [cepStudy](#) (2021), CBAM, section 5.

4 Theoretical “First-best” Solution: Global Carbon Pricing

Given that the weaknesses of current global climate action cannot be tackled by a unilateral response by the EU such as a CBAM, global carbon pricing is widely regarded as an effective instrument for achieving the Paris climate targets.³³ It would not only provide incentives for GHG abatement, but it would also create a level playing field, thereby eliminating the risk of carbon leakage.³⁴ Two options for establishing a uniform global carbon price are eligible: a global ETS and a global carbon tax.

- The most effective and efficient way to reduce GHG emissions multilaterally would be a **global ETS** encompassing all the GHG emission of all countries and sectors (“first-best solution”). All GHG emissions would be limited and reduced effectively by a binding global “cap” and emission allowances could be traded worldwide, thereby generating a uniform carbon price. This would lead to efficiency gains, as competition for the cheapest options to reduce GHG emissions would be increased.
- A uniform global carbon price could also be set by a **carbon tax**. However, such an approach would not be as effective as a global ETS because in the absence of a binding global cap the carbon tax would have to be continuously adjusted to changing economic situations to incentivise sufficient GHG abatement through the price signal it conveys to consumers.³⁵ The constant need for adjustments would be complicated by the lack of information necessary to determine the appropriate tax level, political opposition³⁶ and headwinds in international negotiations. As a result, setting the carbon price at the “right” incentive level, or adjusting it where necessary, is likely to be difficult.

The UN Paris Climate Agreement envisages options for countries to reach their NDCs by “cooperative approaches” on a voluntary basis.³⁷ To this end, countries could establish international “carbon markets” for cross-border trade in certified reductions of GHG emissions, both between countries and between countries and private investors. This would allow, e.g., for the bilateral transfer of certified GHG emissions reductions between countries, the linking of different ETSs of two or more countries and even – at least in the long term – the establishment of a global ETS. However, even if reliable rules for the measurement and certification of GHG emissions reduction are set at the international level during COP26, it is unrealistic³⁸ to imagine that a truly uniform global ETS encompassing all countries and generating a global carbon price will be established within the foreseeable future.

³³ Weitzman, M. (2014), [Can Negotiating a Uniform Carbon Price Help to Internalize the Global Warming Externality?](#), Journal of the Association of Environmental and Resource Economists 1(1), pp. 29–49; Nordhaus, W. (2015), p. 1347; Stiglitz, J. E. / Stern N., et al. (2017), [Report of the High-Level Commission on Carbon Prices](#); Bonn, M. / Menner, M. / Voßwinkel, J. (2017), Globalisierung des Klimaschutzes, [cepInput 07/2017](#), section 4.2; BMWi-Beirat (2021), [Study](#).

³⁴ See [cepInput 07/2017](#), section 4.2.

³⁵ See, e.g., Menner, M. / Reichert, G. (2019), CO₂-Steuer oder Emissionshandel?, [cepAdhoc](#) of 16 July 2019, section 4.1.

³⁶ See, Hanafi, O. / Joussaume, M. / Menner, M. / Reichert, G. / Schwind, S. (2019), Carbon Pricing in France & Germany, [cepInput 11/2019](#), for a discussion of the “yellow vest” protests in France against a scheduled increase of the carbon tax.

³⁷ UNFCCC, [Paris Agreement of 12 December 2015](#), Art. 6.

³⁸ see [cepInput 07/2017](#), p. 6.

5 Pragmatic “Second-best” Solution: Multilateral Climate Club

Since it is currently unrealistic to introduce all-encompassing global carbon pricing in the short term, the concept of a multilateral climate club – henceforth: CC – consisting of a number of “willing” countries that agree on carbon pricing is gaining momentum – resulting, e.g., in the adoption of a “key-issues paper” by the German Government in August 2021.³⁹ To bring this most recent German initiative into context, we will first set out the original idea of a CC as put forward most prominently by Nobel laureate William Nordhaus. Then we will describe alternative proposals that have been developed combining insights from the analysis by Nordhaus with alternative ways to provide countries with incentives to join and stay in the CC. Finally, we identify potential elements of a CC sketched out in the German key-issues paper that is supposed to initiate a diplomatic process.

5.1 Punitive Tariffs: The Climate Club Model by Nordhaus

As a means to overcome free-riding in the context of international climate action, Nordhaus proposed in 2015 to establish a CC of countries.⁴⁰ In light of the “slow progress of global abatement efforts under the Paris Agreement” the key to an effective treaty would be to “change from a voluntary agreement to one with strong incentives to participate”:⁴¹

- (1) **Common ambition:** Club members would share a high abatement ambition reflected by a high **joint minimum carbon price**⁴² starting at 50 USD and increasing annually by 3% in real terms, i.e. inflation adjusted.⁴³
- (2) **Incentives to join the climate club:** Club members would levy a duty on imports from non-members – preferably in the form of a punitive uniform ad-valorem trade tariff on all imported goods of “approximately 5%”.⁴⁴ Unlike other CC proposals (see 5.2), the punitive tariff would not be linked to the carbon content of goods. The prospective revenues from the tariff are intended to foster high participation in the CC and a significant increase in global climate action.⁴⁵

5.2 Alternative Models of Climate Clubs Based on Carbon Border Adjustment (CBA)

As a critical response to the Commission proposal of a unilateral CBAM, the EU has been urged to form a CC with third countries. This could be implemented by seeking multilateral agreements without relying primarily on import duties⁴⁶ or by offering them “the option of joining the EU’s CBAM regime”⁴⁷.

³⁹ German Government (2021), [Key-issues Paper: Initiative for a Multilateral Climate Club](#).

⁴⁰ Nordhaus, W. (2015).

⁴¹ Nordhaus, W. (2020), [The Climate Club – How to Fix a Global Failing Effort](#), Foreign Affairs [Nordhaus, W. (2020)].

⁴² For an analysis of the advantages and disadvantages of a minimum price see [cepInput 07/2017](#), p. 7 et seq.

⁴³ These values refer to Nordhaus, W. (2020) and are not backed by the quantitative simulation study in Nordhaus, W. (2015), p. 1348 et seq.

⁴⁴ The preference for a punitive tariff and its level of 5% in Nordhaus, W. (2020) is based on the quantitative simulation study in Nordhaus, W. (2015), p. 1348 et seq.

⁴⁵ Nordhaus, W. (2015), p. 1357.

⁴⁶ Mathieu, C. (ed.) (2021), [Can the Biggest Emitters Set Up a Climate Club?](#), *Études de l’Ifri, June 2021*; Tagliapietra, S. / Wolff, G. B. (2021), [Form a climate club: United States, European Union and China](#), *Nature* Vol. 591, pp. 526–528; BMWi-Beirat (2021), [Study](#); Kolev, G. (2021), [Trade Club for Climate](#), IW-Policy Paper 8/21; Lamy, P. / Pons, G. / Leturcq, P. (2020), [Greening EU trade 3 – A European Border Carbon Adjustment proposal](#), Europe Jacques Delors Policy Paper.

⁴⁷ Gläser, A. / Caspar, O. (2021), [Less confrontation, more cooperation – Increasing acceptability of the EU Carbon Border Adjustment in key trade partners](#), *Germanwatch Policy Brief*.

However, only a few of these suggestions contain specific proposals for the design of such a CC. In line with Nordhaus they hold the view that the club should provide for (1) common ambitious climate targets and (2) strong incentives to join the club. Opinions differ, however, on the actual implementation and on trade tariffs as a leverage to achieve wide participation in the club.

5.2.1 CBA + Potentially Punitive Tariffs: Climate Club Model by the BMWi-Beirat

The *BMWi-Beirat* urges the EU to form a CC during “the short window of opportunity of the first half of US President Biden’s term in office” instead of only implementing a unilateral CBAM.⁴⁸ Other developed and developing countries should be provided with incentives to join the club. The main elements of the proposal are:

- (1) **Common ambition:** In line with the Nordhaus model, a **joint minimum carbon price** shall be established among the club members.
- (2) **Incentives to join the climate club:** Unlike the Nordhaus model that favours a punitive tariff on all imports from non-members, the incentive for non-members to join the club is given here by establishing a **carbon border adjustment (CBA)** on imports of certain carbon-intensive products related to their carbon content in the form of an **import duty** or a **notional ETS**. As a result, club members receive the revenue of the CBA. Trade between club members shall not be subject to any CBA.⁴⁹ If these incentives are insufficient and further incentives to join the club are necessary in addition to the CBA, potentially **punitive tariffs** could be considered.⁵⁰

5.2.2 CBA + Trade Facilitation: The Trade Climate Club Model by IW

The *Institut der Deutschen Wirtschaft* (IW, Institute of the German Economy) draws “on the potential of trade policy to contribute to climate protection” proposing as one option a “trade club for climate” that seeks to liberalise trade in environmental and climate goods and services.⁵¹ The main elements of the proposal are:

- (1) **Common ambition:** A **uniform carbon price** or a **joint minimum carbon price** (“international carbon price floor”) among club members shall be established; potentially, also fossil fuel subsidies shall be eliminated within the club.
- (2) **Incentives to join the climate club:** The model suggests **trade-related advantages**, notably **easy access to the club countries’ markets for climate protection goods and services** as well as their climate-friendly technology at lower prices by reducing tariffs and non-tariff barriers.⁵² Further incentives to join the club are provided by special benefits granted to club members, e.g., access to green procurement, common green labelling, assistance in carbon measurement or toleration of subsidies for renewable energies for members. Moreover, another incentive for non-members to join the club is the prospect of receiving **CBA** revenues.

⁴⁸ BMWi-Beirat (2021), [Study](#).

⁴⁹ Ibid., p. 32. Contrary to this: Pihl, (2020), [A Climate Club as a complementary design to the UN Paris agreement, Policy Design and Practice, 3:1, 45-57](#), p. 54 (proposing a CBAM also within the climate club).

⁵⁰ BMWi-Beirat (2021), [Study](#), p. 32.

⁵¹ Kolev, G. (2021), [Trade Club for Climate](#), IW-Policy Paper 8/21, p. 12.

⁵² Ibid., p. 12.

5.2.3 CBA + Sectoral Uniform Carbon Pricing: The Sector Climate Club Model by IW

The *Institut der Deutschen Wirtschaft* proposes as a second option a CC at sector level. The proposal focuses on the main producing countries of a specific carbon-intensive product and thus makes negotiations on uniform levels of carbon prices more feasible.⁵³ The main elements of the proposal are:

- (1) **Common ambition: A uniform carbon price for the production of specific carbon-intensive products** – e.g., steel – shall be established. The envisaged “Global Sustainable Steel Arrangement”, which the EU and the U.S. intend to negotiate,⁵⁴ is an example of such a sectoral CC.
- (2) **Incentives to join the climate club:** If all main countries of production of a specific carbon-intensive product join the CC, the **uniform carbon price** establishes a level-playing field between the competing companies. Consequently, higher carbon prices within the CC can be passed on to consumers (“pass-through”). Since there is no substantial carbon leakage risk within the CC, the club members do not have to relieve the companies of carbon costs, which increases their revenues. Suppliers from non-members with a very low market share would face a **CBA** on imports of these specific carbon-intensive products based on their carbon content.

5.3 Diplomatic Initiative: Key-Issues Paper of the German Government

In August 2021, the German Government adopted a key-issues paper proposing the development of a “cooperative and open climate club”.⁵⁵ It is motivated by the fact that by strengthening their climate policies, countries are exposed to the risk of carbon leakage. To solve this problem, the German Government advocates the development of a multilateral CC that it wants to promote in the EU and to international partners. The key-issues paper is not a fully elaborated proposal for a CC, but has the character of a working paper, often only vaguely sketching out potential elements of a CC. It is intended to initiate a diplomatic process for the further development of a CC by the EU in cooperation with third countries. Nevertheless, the following potential elements of a CC can be identified:

- (1) **Common ambition:** Club members should aim for climate neutrality by 2050 and set “ambitious” interim targets.⁵⁶ The CC is conceived as a “partnership of the countries of the world with the highest ambitions for climate policy” – primarily large GHG emitters, major trading partners of the EU and countries with carbon pricing or with large industrial sectors; in principle, however, the club shall be open to all states⁵⁷ that adopt “corresponding” climate targets and measures.⁵⁸ Developing countries should be offered cooperation for industrial transformation.⁵⁹ Club members should coordinate their international climate policies “as closely as possible” – including global mitigation measures for aviation and shipping emissions and an internationally coordinated kerosene tax.⁶⁰ Club members should use common procedures to measure and monitor producer emissions and calculate the carbon footprint of products, as well as “implicit” carbon prices that convert other energy- and climate-related taxes and subsidies, production-related standards and emission limits into comparable carbon prices per tonne of GHG emissions. They should strive for setting a

⁵³ Ibid., p. 14.

⁵⁴ White House (2021), [Joint US-EU Statement of 31 October 2021 on Trade in Steel and Aluminum; Remarks by President Biden and European Commission President Ursula von der Leyen on U.S.-EU Agreement on Steel and Aluminum Trade.](#)

⁵⁵ German Government (2021), [Key-issues Paper: Initiative for a Multilateral Climate Club.](#)

⁵⁶ Ibid., p. 2.

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ Ibid., p. 5.

⁶⁰ Ibid., p. 6.

joint minimum price for GHG emissions that increases over time and the convergence of the various carbon prices of the club members to **one uniform carbon price**. The key-issues paper leaves open how that could be achieved: through an ETS, a tax, or measures with comparable effects.

(2) **Incentives to join the climate club:** Club members should establish **joint measures against carbon leakage**. If club members pursue similarly ambitious abatement efforts, measures against carbon leakage among the members (“internal carbon leakage”) “could become superfluous”; a minimum carbon price would reduce the risk of internal carbon leakage.⁶¹ Different options for designing carbon leakage protection vis-à-vis third countries (“external carbon leakage”) are mentioned:

(a) **“Relief” from carbon costs for energy-intensive companies** could “initially” be granted, while the steering effect of a carbon price to induce decarbonisation should be maintained “as far as possible”. The key-issues paper does not specify whether both aims could be achieved by free allocation of allowances alone or in combination with a carbon consumption tax.

(b) Alternatively, a **WTO-compatible CBA** could be introduced. In contrast to the CBAM proposal from the Commission⁶², however, the German Government considers provisions for the protection of the export industry to be necessary “in any case”.⁶³

Since **trade policy can facilitate trade in climate-friendly goods** and abatement technologies, club members must act in a coordinated way towards facilitating trade policy – also vis à vis non-members. However, WTO rules must be observed in this regard.⁶⁴

Tab. 1: Potential Elements of a Climate Club

CC Model	Common Ambition	Incentives to Join the Climate Club
Nordhaus CC	joint minimum carbon price, increasing over time	punitive tariffs on all imports
BMWi-Beirat CC	joint minimum carbon price	CBA + potentially punitive tariffs (if necessary)
IW Trade CC	uniform or joint minimum carbon price	CBA + trade facilitation
IW Sector CC	uniform carbon price for specific goods	CBA + sectoral carbon leakage protection
German Government Key-Issues Paper	joint minimum carbon price, increasing over time final aim: convergence to one uniform carbon price	Some kind of common carbon-leakage protection + trade facilitation

⁶¹ Ibid., p. 4.

⁶² See above section 3.2.

⁶³ Ibid., p. 4.

⁶⁴ Ibid.

6 Assessment of Climate Club Models

For the assessment of the various proposals for CCs we apply the following criteria: (1) common ambition, (2) incentives to join the club, (3) carbon leakage protection, (4) effect on global GHG emissions, and (5) legal feasibility and effects on trade.

6.1 Common Ambition

The setting of a uniform or at least joint minimum carbon price established by multilateral cooperation is at the core of all the CC models under discussion. It is the pragmatic attempt of an operational approach to carbon pricing at least for a group of “willing countries” in order to reduce GHG emissions. This could lead to more ambitious NDCs of the participating countries that are more in line with the Paris climate targets. Compared with a minimum price, a **joint uniform carbon price** would provide stronger incentives for comparable GHG abatement measures among club members. However, a uniform carbon price is incompatible with any kind of ETS (like the EU ETS) where the carbon price is not set exogenously. This is because the price of ETS allowances is flexible and volatile since it is generated by the market forces of demand and supply for traded emission allowances. Consequently, the IW Sector CC that favours a uniform price suggests that the specific sector be exempt of other carbon costs like an ETS allowance price. A **joint minimum carbon price**, as suggested by the other CC models, faces the same problem of incompatibility unless this minimum price is imposed on the ETS through obligatory market interventions whenever the allowance price tends to fall below it. Furthermore, an exogenously set minimum price below the ETS market price leads to a competitive disadvantage for producers in club countries that have introduced an ETS. This may result in carbon leakage within the CC.⁶⁵ Therefore, the design of a CC must take into account the different policy choices of club members regarding measures for the reduction of GHG emissions.

6.2 Incentives to Join the Club

In a **Nordhaus CC**, potential club members face a trade-off: A carbon price of 50 USD that rises by 3% will reduce damages related to climate change but will impose costs on companies and consumers and cause a competitive disadvantage, especially for carbon-intensive firms. A punitive tariff, on the other hand, will protect firms located in club members to some extent from international competition and generate government revenue. In principle, the positive effects including tariff revenues and the reduction in damage from climate change could outweigh the burden, so that it is economically attractive for states to join the club if the punitive tariff is sufficiently high compared to the carbon price. As a result, however, rising carbon prices will require increases in punitive tariffs. Nordhaus (2015) shows that where carbon prices reach 100 USD, for many countries, even a punitive tariff rate of 10% will no longer be sufficient to provide an incentive to join the club.⁶⁶

Alternative incentives – these include the prospect of receiving revenues from carbon pricing rather than exposing its exporting industry to a CBA when exporting to the CC; mutual benefits from enhanced trade in climate-friendly goods and abatement technologies – as suggested by the **BMW-Berat CC**, **IW Trade CC** and **IW Sector CC**, are even less likely than punitive tariffs to create sufficient incentives for non-members to join a CC.

⁶⁵ For a detailed discussion of the problem of “internal carbon leakage” see below section 6.3.2.

⁶⁶ Nordhaus, W. (2015), p. 1358, Fig. 3 (“regions” refer to groups of countries).

Therefore, a clear political will is necessary to overcome the logic of short-term economic self-interest and focus on the long-term goal of a more effective and efficient reduction in global GHG emissions to the level considered necessary for the benefit of all countries. For a group of such “willing countries” a CC may be a suitable instrument for organising their multilateral cooperation on carbon pricing and the protection of their industries from carbon leakage.

6.3 Carbon Leakage Protection

6.3.1 Carbon Leakage Into Non-Club-Members (“External Carbon Leakage”)

In the **Nordhaus CC**, carbon leakage into countries outside the CC (external carbon leakage) will only be eliminated if all countries have strong incentives to join the club and do so. Otherwise, punitive import tariffs will only partially discourage the relocation of production to non-club members. Therefore, as a stand-alone instrument tariffs will not be sufficient to eliminate external carbon leakage entirely.

A CBA on imports from non-members – as envisaged in the **BMW-Beirat CC**, **IW Trade CC** and **IW Sector CC** – may in principle eliminate competitive disadvantages for club members which arise in import markets due to higher carbon prices on their goods produced for domestic consumption. This is the case if a uniform carbon price within the CC is accompanied by a uniform CBA on imports that eliminates this price difference for all countries. However, if only a joint minimum carbon price is set – as envisaged in the **BMW-Beirat CC** and **IW Trade CC** –, a joint CBA towards non-members can only be based on this minimum price level. Consequently, the industries of club members with carbon prices above the joint minimum price can still be exposed to the risk of external carbon leakage with regard to the remaining price difference vis à vis the lower carbon prices of third countries. In this case, a club member with carbon prices above the joint minimum carbon price of the club might try to level the price difference towards imports into its territory by supplementing the joint minimum CBA with a national CBA surcharge. However, since no internal CBA is applied within the club, such a national CBA surcharge could easily be circumvented by diverting imports to those club members that apply only the joint minimum CBA. The same holds if all countries without an ETS apply a joint CBA at the level of the minimum carbon price and countries with an ETS apply a CBA according to their ETS allowance prices. This problem could also arise in a CC designed according to the **German key-issues paper**, depending on the measures applied against carbon leakage and the international gap between carbon prices in the long term.

Furthermore, a CBA for imports alone cannot eliminate competitive disadvantages for the industries of club members in *export markets*. Exporters to non-members are only protected from the risk of external carbon leakage if export rebates or similar measures are applied.⁶⁷ However, if the CC includes a significant share of important trading partners, this problem can be limited. This is a significant advantage of a large multilateral CC by comparison with simply applying a unilateral CBAM. As long as a CC is not very comprehensive, however, the problems for effective external carbon leakage protection for the CC members are similar to the corresponding problems with a unilateral CBAM.⁶⁸ Companies that are particularly affected by external carbon leakage risks regarding their exports to non-member countries could be protected by granting at least partial relief from carbon costs. To achieve this, the

⁶⁷ See [cepStudy](#) (2021), CBAM, sections 6 and 7.

⁶⁸ [cepStudy](#) (2021), CBAM, sections 6 and 7.

EU could in principle keep the current system of free allocation of EU-ETS allowances at least for exporters.⁶⁹ Other club members without an ETS would have to rely on some form of “export rebates”.

6.3.2 Carbon Leakage Towards Club-Members (“Internal Carbon Leakage”)

An additional problem associated with carbon leakage has so far been widely overlooked: If rather than a *uniform* carbon price, only a *joint minimum* carbon price is set within a CC, different carbon prices between club members will lead to competitive disadvantages and consequently to “internal carbon leakage” within the club. If the EU were to join such a CC it is likely to be confronted with the following scenario: the EU-ETS allowance price will continue to rise significantly, also relative to the carbon prices of other potential club members. If (1) EU companies are not sufficiently relieved from the carbon costs of the EU-ETS by free allocation of allowances and (2) no border adjustment of carbon costs is applied between club members, the cost difference will quickly rise to a level where EU producers can no longer compete with producers from other club members who are only subject to the minimum carbon price.

The proposed trajectory of the minimum price in the **Nordhaus CC** might make this scenario less likely. However, it is possible that price increases in the ETS will exceed the agreed increase in the minimum carbon price. This would provoke leakage effects. Likewise, in the proposal in the **German key-issues paper**, any significant gap between the rising minimum carbon price and even higher EU-ETS allowance prices would be harmful to EU producers. This problem could be solved, at least in the long term, if the final aim of converging the different carbon prices within the club to one uniform carbon price is achieved. The key-issues paper is, however, silent on how to achieve such convergence. The **BMWi-Beirat CC** proposal does not apparently link the minimum price, even loosely, to the EU-ETS allowance price and thus implicitly seems to tolerate internal carbon leakage. The risk of internal carbon leakage could then only be avoided by a border adjustment among club members.⁷⁰ This, however, would also reduce the incentive to participate in the club. By contrast, the **IW Trade CC** and **IW Sector CC** point to the problem of internal carbon leakage when members “increase their carbon price level too far above the Club’s minimum price”.⁷¹ Therefore, both proposals alternatively also consider a uniform carbon price.

6.4 Effect on Global GHG Emissions

In the **Nordhaus CC** the envisaged minimum carbon price of 50 USD, which rises annually by 3% in real terms, gives a strong incentive for each country in a CC to decarbonise.⁷² With a CC of sufficient size, global emissions will decrease significantly, and indirect carbon leakage effects will remain small. However, if a higher price is needed to achieve the Paris climate targets, it might be difficult to agree over time on adjustments of the annual price increase.⁷³

The **BMWi-Beirat CC**, **IW Trade CC** and **IW Sector CC** do not even specify the amount of a carbon price, nor whether an annual rise is planned and at what rate. Therefore, it is unclear whether there will be

⁶⁹ BMWi-Beirat (2021), [Study](#), p. 15.

⁷⁰ Pihl, (2020), [A Climate Club as a complementary design to the UN Paris agreement](#), Policy Design and Practice, 3:1, 45-57, p. 54.

⁷¹ Kolev, G. (2021), [Trade Club for Climate](#), IW-Policy Paper 8/21, p. 13.

⁷² With a fictitious starting date of 2022 and assuming an annual inflation rate of 2%, this would mean a price of 74 US Dollar in 2030 and in 120 US Dollar in 2040.

⁷³ See [cepInput 07/2017](#), p. 7 et seq.

substantial reductions of global GHG emissions. In the **IW Sector CC** different sectors might end up being locked into different carbon prices – leading to undesirable substitution effects among raw materials that counteract some of the abatement efforts. The **German key-issues paper** proposes a rising minimum price, but also without specifying its amount and growth rate. If the (minimum) price is substantial and the club is sufficiently large, global emissions will decrease. Over time, however, the price signal will fall under the levels needed to reach the Paris climate targets if the (minimum) price is not adjusted dynamically to a sufficient extent. The **BMW-Beirat CC** proposal nevertheless seems to be content with a low minimum price as a starting point for global carbon pricing.

Like the **IW Sector CC** does with regard to a specific product, the **IW Trade CC** alternatively also considers negotiating a *uniform* carbon price instead of a *joint minimum* carbon price. In this case, it is even more important to increase the carbon price to adequate levels over time since no country will be able to exceed this price on a voluntary basis, which could be the case with a minimum carbon price.

6.5 Legal Feasibility and Effects on Trade

Uniform punitive import tariffs – being the corner stone of the **Nordhaus CC** – are incompatible with the obligation of WTO member states to cut and bind their tariffs on imports [Art. II GATT: “Schedules of Concessions”].⁷⁴ Hence, the WTO framework would need to be amended by allowing punitive tariffs on imports. However, it is unrealistic to expect that WTO law could be changed in the foreseeable future in this respect. Therefore, significant risk of trade conflicts persists for the time being, unless all big trading nations join the club from the outset.

In the **BMW-Beirat CC**, **IW Trade CC** and **IW Sector CC** as well as in the **German key-issues paper** the CBA at the border shares the same legal and trade policy problems as a unilateral CBAM.⁷⁵ In order not to breach the WTO requirement of non-discrimination pursuant to the national-treatment principle, a CBA must not be “in excess” of the carbon costs to which “like” products manufactured in the EU are subject. The practical challenges of measuring, determining and comparing the energy consumption and GHG emissions associated with imported and “like” domestic products, however, pose a risk of a CBA being “in excess”. Furthermore, the establishment of a CBA involves many pitfalls regarding its compliance with WTO law and is prone to stir up trade conflicts.⁷⁶ Furthermore, with the exception of the **IW Sector CC** the CC models set a minimum carbon price and do not envisage any measures for the prevention of “internal carbon leakage”, such as a CBA on imports from other club members. Since in these CCs carbon leakage between club members seems to be tolerated, they might be accused of being a predominantly protectionist rather than an environmental measure. In addition, preferential treatment of trade partners within the **IW Trade CC** with respect to environmental technologies might aggravate “the risks of retorsion and escalating trade conflicts”.⁷⁷ In general, the different treatment of non-members of the club is prone to provoke fierce trade conflicts. However, in the **IW Sector CC** the risk of retaliation would be minimised as all major producers would be included. The chances of arriving at an agreement may be higher as fewer countries are needed and the effect for each country is smaller since only a specific sector is affected.⁷⁸

⁷⁴ WTO, [Schedules of concessions](#); WTO, [Tariffs: more bindings and closer to zero](#). See [cepStudy](#) (2021), CBAM, section 5.2.1.1.1; Stiftung Arbeit und Umwelt (2021), [Klimaneutrale Industrie: Mögliche Varianten für einen zukunftsfesten Carbon-Leakage-Schutz im Vergleich](#), p. 27.

⁷⁵ See section 3 and [cepStudy](#) (2021), CBAM, section 5.

⁷⁶ *Ibid.*

⁷⁷ Kolev, G. (2021), [Trade Club for Climate](#), IW-Policy Paper 8/21, p. 14.

⁷⁸ *Ibid.*

Tab. 2: Assessment of Climate Clubs Models

CC Model	Common Ambition	Incentives to Join the Club	Carbon Leakage Protection	Effect on Global GHG Emissions	Legal Feasibility & Effects on Trade
Nordhaus CC (low carbon price)	+	++	–	++	--
Nordhaus CC (high carbon price)	++	+	–	+	--
BMWi-Beirat CC (only CBA)	0	+	–	+	+
BMWi-Beirat CC (punitive tariffs)	0	+	–	+	--
IW Trade CC	+	+	–	+	++
IW Sector CC	+(sectoral)	++	+(sectoral)	0	+
German Government Key-Issues Paper	++	+	?	+	++

7 Carbon Leakage Protection by Club Design

Due to the various shortcomings of the above proposals and since none of them (a) has a convincing strategy to prevent internal carbon leakage and (b) provides for WTO-compliant external carbon leakage protection for exporters to third countries, this section presents CC proposals that avoid carbon leakage by design: a “carbon leakage-proof CC” (CLP-CC) based on free allocation of ETS allowances and climate taxes (CT) as well as on carbon border adjustments (CBAs) for club members without an ETS and – as a long-term perspective – a CC based on a linkage of the ETSs of the various club members.

7.1 Recommended Club Design: A “Carbon Leakage-Proof” Climate Club

An adequate CC design must take into account that club members will not achieve a uniform carbon price for the time being and hence internal carbon leakage might prevail among club members. Important potential club members, e.g. the US, are not expected to apply an explicit carbon price generated by a carbon tax or an ETS in the short term. Even if within the CC different climate protection measures are converted into comparable “implicit” carbon prices, the problem remains that countries with an ETS, e.g. the EU, cannot commit to a particular uniform carbon price as the volatile allowance price is not fixed exogenously but generated by the market forces of supply and demand for ETS allowances. Thus, to prevent EU industries from internal carbon leakage, a CC has to bridge the cost gap that arises between a minimum carbon price and a presumably higher EU-ETS allowance price.

The following proposal of a “**carbon leakage-proof CC**” (CLP-CC) could protect companies from internal and external carbon leakage by creating a level playing field for trade in carbon-intensive goods among club members as well as with non-members (see **Fig. 1**):

- **Common Ambition:** Club members are free to choose their preferred measures for the reduction of GHG emissions. Accordingly, the EU can keep its EU-ETS or others can start an ETS – generating an explicit, albeit volatile carbon price for ETS allowances. Other club members – like the US – can apply other measures – generating at least an implicit carbon price. At the core of the CLP-CC is the common ambition of all club members to commit to a *joint minimum* carbon price.
- **Internal and external carbon leakage protection:** With regard to the protection against the risk of internal and external carbon leakage, the common ambition of a joint minimum price requires that the design of a CC takes into account the different policy choices of club members regarding measures for the reduction of GHG emissions:
 - **Club members that apply an ETS** – like the EU – are not able to set a fixed carbon price. Moreover, it is very likely that the ETS allowance price will rise above the joint minimum carbon price. Consequently, due to the resulting price difference a competitive disadvantage for products subject to an ETS and a risk of internal carbon leakage within the CC will remain. To create a level playing field for carbon costs, both within the CC and in relation to non-members, the club members applying an ETS are allowed to allocate all ETS-allowances for free, up to a benchmark, that are required to cover the respective GHG emissions to the full extent such that they do not have to bear the carbon costs of the ETS.⁷⁹ The **free allocation of allowances** eliminates the risk of both internal and external carbon leakage.

⁷⁹ For similar demands see Bonn, M. / Reichert, G. (2018), Climate Protection by way of the EU-ETS, [cepInput 03\(2018\)](#).

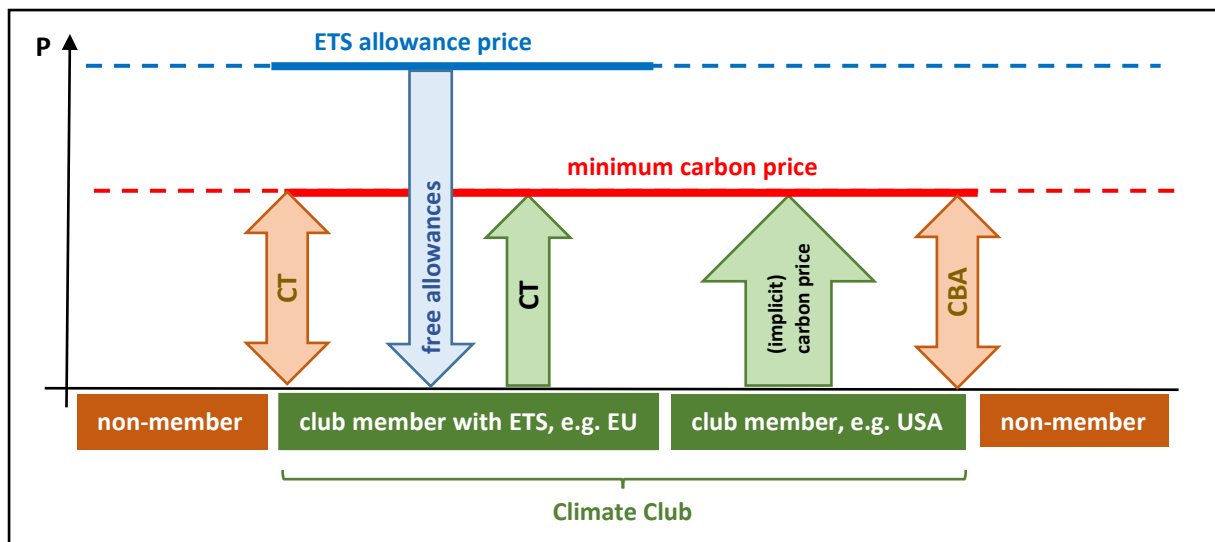
To implement the joint minimum carbon price within the CC, club members applying an ETS also levy a **climate tax (CT) on all goods destined for consumption within the club**, irrespective of whether they are produced within the country or imported from either a fellow club member or a non-member. The goods exported from a club member applying an ETS to other club members are not exempted from the CT, thereby implementing the minimum carbon price agreed upon within the CC. However, exports to non-members are exempt from the CT. In combination with the free allocation of ETS allowances, exports to non-members are consequently traded without applying carbon costs (“net of carbon costs”). In this way, the combination of a CT levied on products destined for consumption in the CC and the free allocation of ETS allowances creates a level playing field for carbon costs both in relation to other club members and non-members: Internal carbon leakage is prevented because goods exported to club members only have to bear the carbon costs resulting from the CT which are equal to the minimum price charged everywhere in the club. External carbon leakage is prevented because exports to non-members are exempt from the CT and do not bear any carbon cost.

- **Club members that do not apply an ETS** – like the US – are able to set their (explicit or implicit) carbon price equivalent to the *minimum price* agreed upon within the CC, thereby ensuring a level playing field and eliminating the risk of internal carbon leakage in relation to other club members. Consequently, they do not have to establish a CBA with regard to trade within the CC. To eliminate the risk of external carbon leakage, however, they are free, for example, to apply a **CBA** to non-members.
- **Incentive to join the club:** To increase the incentives to join the CLP-CC, **club members can cooperate** on technical assistance relating to the measurement of carbon content and the set-up of a CCT, and on the establishment of joint green labels etc. In addition, other trade-facilitating measures can be adopted: e.g., members might open their public procurement for environment- and climate-friendly products to other club members. In addition to those benefits, one of the main incentives to join any CC lies in the fact that countries lose their competitive advantage of having lower explicit or implicit carbon prices which reduces the opportunity cost of starting with a more ambitious climate policy instead.⁸⁰ In the CLP-CC, the **competitive advantage of no-climate action is eliminated through the CTs and CBAs** of the club members that establish a level-playing field.

The main advantage of the **CLP-CC** for the EU – given its ambitious climate targets –, is that even skyrocketing prices for EU-ETS allowances will not lead to carbon leakage problems: A CT combined with the continued free allocation of allowances does not harm the competitiveness of EU industries but enables the EU to share a joint minimum carbon price within the CC for the respective industries. The pass-through of carbon costs to consumers via the CT corresponding to the joint minimum price of the CC establishes a level-playing field with imports from club members. Since exports to other club members also bear the CT, trade within the club takes place at the minimum price – avoiding internal carbon leakage. EU exports to third countries are traded without applying carbon costs (“net of carbon costs”) and imports from third countries face the same CT as domestic production exempt of allowance costs by way of their free allocation – avoiding external carbon leakage.

⁸⁰ BMWi-Beirat (2021), [Study](#), p. 18.

Figure 1: „Carbon Leakage-Proof“ Climate Club (CLP-CC)



Making this **CLP-CC** work for the EU requires that the free allocation of EU-ETS allowances eliminates the entire carbon costs imposed by the EU-ETS for all companies exposed to carbon leakage risk. However, the current regulation (“cross-sectoral correction factor”)⁸¹ or further restrictions as proposed by the EU Commission in the “Fit for 55” legislative package of July 2021 – i.e. through the conditionality on efficiency-enhancing measures⁸², the increased update rate of benchmarks or the final phase-out of allowances by 2035 – all reduce the availability of free allowances.⁸³ Therefore, these rules have to be changed and the free allocation of allowances has to be extended fully up to a benchmark for all sectors at risk of carbon leakage.⁸⁴ This does not mean – as opponents to the free allocation of EU-ETS allowances argue⁸⁵ – that exporting industries will have no incentives to decarbonise if they do not have to pay a carbon price. This is because in the EU-ETS they still have the incentive to abate whenever the allowance price exceeds their marginal abatement cost; and by selling their free allowances they are able to finance their abatement measures. Since overall EU industrial production including exports is still subject to the cap the EU-ETS still controls the territorial GHG emissions of the EU industry and energy sectors and EU exports do not escape the abatement efforts of the EU when granted free allowances to avoid carbon leakage. Other club members can use a CBA and export rebates for exports outside the CC to achieve trading “net of carbon costs”. Rules for permitted export rebates would have to be agreed within the club especially for club members that do not apply an explicit carbon price, in order to avoid excess export subsidies for exports outside the CC.⁸⁶

To promote the creation of such a CC by multilateral cooperation, the unilateral introduction of a CBAM as proposed by the EU Commission in July 2021⁸⁷ should be put on hold. Instead, the EU should solicit supporters for a **CLP-CC** at the international climate negotiations. If no agreement can be reached, the EU should insist internationally on the principle of trading “net of carbon costs” before

⁸¹ See [ceplnput 03/2018](#), p. 7.

⁸² Commission Proposal COM(2021) 551, amended Art. 10a (1).

⁸³ Ibid., new Art. 10a (2) lit. d.

⁸⁴ See Neuhoﬀ, K. et al. (2016).

⁸⁵ L’Heudé, W. et al. (2021), A Carbon Border Adjustment Mechanism for the European Union, [Trésor-Economics 280](#), p. 7.

⁸⁶ The club members could also try to change WTO rules such that the minimum price of the CC can be safely rebated to exporters when the rebates are compatible with the common rules of the CC.

⁸⁷ CBAM Proposal COM(2021) 564.

the WTO as a basis for international trade to preserve the free allocation of allowances. On this basis, EU industries are protected against carbon leakage and the EU can focus on multilateral cooperation on climate action without risking trade conflicts, e.g. by linking its EU-ETS with the other ETSs.

7.2 Long-Term Goal: An Emission-Trading-based Climate Club

A way to gradually realise the currently unattainable first-best solution of a global ETS is through multilateral agreements is – as an intermediate “second-best solution” –to link existing ETSs with each other.⁸⁸ Such interlinked ETSs mutually recognise each other’s allowances, thereby creating a de facto uniform carbon market with a uniform carbon price for allowances. On this basis, such an **ETS-based CC** could be further extended. The uniform allowance price resulting from the interlinkage of different ETSs creates a level playing field for all industries throughout the club. In addition, there would be direct benefits to club members by the very linkage of their ETSs: on average, lower prices because of more opportunities to decarbonise efficiently; potentially more price stability; increased market liquidity.⁸⁹ Furthermore, there are indirect benefits: mutual assistance for the establishment or improvement of ETSs; assistance in the monitoring, reporting and verification of GHG emissions; information exchange; institutional capacity-building; policy coordination.⁹⁰

To protect industries from external carbon leakage into non-members of the **ETS-based CC** any complete carbon border adjustment (CBA) could apply, meaning that imports to the **ETS-based CC** face a carbon price linked to the **ETS-based CC** allowance price while exporters to third countries are exempt from the carbon costs via export rebates or free allowances. Since third countries have no competitive advantage in the **ETS-based CC** market by not charging their industries for carbon costs, they might consider introducing carbon pricing or other GHG mitigation measures themselves, joining the **ETS-based CC** or establishing a CBA for their home market and taking a share of the carbon pricing revenues themselves.

A system of interlinked ETS does not require a new global climate agreement but can be established incrementally within the framework of the UN Paris Climate Agreement⁹¹ through bi- and multilateral agreements. Despite some already existing examples,⁹² it is unlikely that in the short term a substantial share of global GHG emissions will be regulated by such a system of linked ETSs. A main reason for this is that a prerequisite for linking ETSs is that a country has sufficient experience with the functioning of its own ETS. Therefore, an **ETS-based CC** will not be achievable in the short and medium term. Nevertheless, an **ETS-based CC** that grows over time is a suitable approach for the gradual establishment of a global ETS in the long term.

⁸⁸ See [ceplInput 07/2017](#), section 4; Brower, T. L. et al. (2016), [Carbon Market Clubs and the New Paris Regime](#), World Bank Group NCM initiative; Kehoane, N. / Petsonk, A. / Hanafi, A. (2017), [Towards a club of carbon markets](#), Climate Change Vol. 144, pp. 81–95; Petsonk, A. / Kehoane, N. / Hanafi, A. (2019), [Some for All? Carbon Clubs in the context of the Paris Agreement and the WTO](#), in Esty, D. / Biniaz, S. eds. (2019), *Cool Heads in a Warming World Part Two: Proactive Trade Initiatives to Address Climate Change* (Yale University 2019).

⁸⁹ Kehoane, N. / Petsonk, A. / Hanafi, A. (2017), p. 87 et seq.

⁹⁰ Ibid, section 4.

⁹¹ UNFCCC, [Paris Agreement of 12 December 2015](#), Art. 6.

⁹² See International Carbon Action Partnership (icap), [Linking](#).

8 Conclusion

Climate change is a global problem which cannot be solved by individual countries. Since truly global climate action is unrealistic for the time being, a pragmatic interim solution could be multilateral co-operation between a significant number of countries, especially those with high GHG emissions, within a multilateral climate club (CC). A CC offers *chances* to reduce GHG emissions more effectively and efficiently. However, the CC models currently discussed suffer from various deficiencies which could increase the risk of carbon leakage. To overcome these potential *pitfalls*, we propose alternative design options for CCs that avoid “carbon-leakage”.

Chances offered by a CC:

- A CC can induce its club members to raise their “Nationally Determined Contribution” (NDC) pursuant to the Paris Agreement to levels that are more in line with the Paris climate targets.
- If large enough, a CC can overcome the “tragedy of the commons” with regard to the global climate (see above section 2).
- In principle, multilateral action in form of a CC can effectively curb global carbon emissions.
- Finally, the multilateral approach to forming a CC can, in principle, be seen as a way to overcome the deficiencies of the proposal of the EU Commission to unilaterally introduce a carbon border adjustment mechanism (CBAM): i.e. the lack of protection from carbon leakage risks for exporters subject to the EU emissions trading system (EU-ETS), the risk of fuelling international trade conflicts, and above all, the limited scope for reducing global GHG emissions.

Pitfalls for CC design options:

- Multilateral climate action must not harm EU industries: When countries increase their efforts to reduce GHG it is crucial to avoid the transfer of carbon-intensive production along with the corresponding GHG emissions to other countries (“carbon leakage”). To this end it is essential that the specifics of the EU-ETS are taken into account when forming a CC with countries that use other forms of explicit or implicit carbon pricing. In particular, a CC needs to address the fact that the EU-ETS allowance price (a) is set by market forces and can therefore vary significantly over time (b) is supposed to increase considerably as the cap is gradually reduced.
- Many of the proposals currently under discussion on how to form a CC have serious flaws that could raise the risk of serious trade conflicts or carbon leakage within the club and into non-members:
 - The **Nordhaus CC** – which envisages a joint minimum carbon price and punitive tariffs to force countries into the club – contradicts the logic of voluntary contributions under the Paris Agreement and endangers international trade. Only if the minimum price goes up in parallel to the price dynamics of EU-ETS allowances, will internal carbon leakage – i.e. within the club – be prevented. However, in this case the economic incentives to join and stay in the club will be too small unless the punitive tariff is substantially increased, thereby negatively affecting international trade.
 - The **BMW-Beirat CC** – which envisages a joint minimum carbon price and a joint CBA at the border to non-members, potentially augmented by punitive tariffs, and no CBA among club

members – leads to internal carbon leakage within the club when the price of EU-ETS allowances is higher than the joint minimum price. For the carbon leakage protection of exporters, export rebates are crucial – which might be challenged before the WTO.

- The **IW Trade CC** – which, like the BMWi-Beirat CC, envisages a joint minimum carbon price and a joint CBA at the border to non-members, but adds trade-facilitating measures instead of punitive tariffs as a way to increase the incentive to join – has the same carbon leakage problems as the BMWi-Beirat CC. Since the proposal is partly based on preferential trade treatments it might also provoke trade conflicts. Internal carbon leakage within the club is only avoided if a uniform carbon price is agreed on.
- In the **IW Sector CC** – which envisages a uniform carbon price for a specific carbon-intensive Product – no carbon leakage problems occur within the participating sector. However, different sectors might end up being locked into different carbon prices – leading to undesirable substitution effects among raw materials. Because of the restricted coverage it can only serve as an intermediate step.
- Overall, CCs are unlikely to create sufficiently purely economic incentives for many countries to join, especially at high carbon prices. Therefore, a clear political will is necessary to overcome short-sighted economic self-interest in favor of the long-term goal of a more effective and efficient reduction in GHG emissions for the benefit of all countries. This can be best achieved in cooperation by a CC which establishes cross-border carbon pricing, and which is “carbon leakage-proof” by design.

“Carbon leakage-proof” Climate Club (CLP-CC):

- A **CLP-CC** establishes a joint minimum price but no joint carbon border adjustment (CBA) towards non-members.
 - Only club members without an ETS use a coordinated CBA for imports from non-members to establish an equal treatment of imports and like domestic goods. For exports to non-members they may apply export rebates according to rules agreed upon in the CC.
 - Club members relying on an ETS, instead, provide free allowances for industries at risk of carbon leakage and charge a climate tax (CT) on domestically produced or imported goods destined for consumption within the club at the level of the minimum price. Only exports to non-members are exempt from the CT. The CT provides a level playing field within the club, and for imports from non-members, while the trade “net of carbon costs”, through the granting of free allowances and exemption from the CT provides exports with a level playing field on non-member markets.
- Alternatively, an **ETS-based CC** – by linkages of ETSs – effectively reduces GHG emissions and prevents carbon leakage via a uniform carbon price. Unfortunately, it is not feasible in the short-term as it requires the establishment of emission trading systems in all major GHG emitting countries and sectors. However, it is worth striving for in the long term.

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