CENTER FOR CLIMATE AND ENERGY SOLUTIONS

CLIMATE-ALIGNED TRADE

Border Carbon Adjustments

Options and Considerations for Policy Design

January 2026

Border carbon adjustments (BCAs) are a policy instrument intended to preserve the economic competitiveness of select heavy-emitting industries as countries accelerate their decarbonization efforts. The term border carbon adjustment is used to refer to the general form of this policy type; however, specific examples referenced in this document utilize a range of naming conventions. By placing a price on the greenhouse gas emissions embedded in traded goods, BCAs level the playing field between producers in highly regulated environments and those in less stringent jurisdictions.

BCAs are multifaceted policies, impacting not only domestic and international emissions, but also the flow of international trade and the domestic production of strategic goods. Policymakers must therefore carefully evaluate the impacts, intended and otherwise, they create by implementing a BCA. This overview draws on existing and proposed policies to analyze the choices that policymakers face when designing a BCA; it lays out available policy options, detailing their associated costs and benefits.

Authors:

Brock Burton
Olivia Windorf
Jason Ye

Center for Climate and Energy Solutions

HIGHLIGHTS

Protect Fair Competition. Border carbon adjustments place a fee on imported goods based on their embedded emissions, typically linked to the costs faced by domestic producers under climate policies. These policies allow countries to strengthen climate action while reducing incentives to shift production to countries with weaker environmental standards.

Design Drives Credibility. A border carbon adjustment's design is critical to its effectiveness and credibility. Clear links to domestic climate policy, simple rules, and fair treatment of trading partners can reduce trade disputes and strengthen the policy's legitimacy, making it more durable over time.

Scope Shapes Impact. Decisions about which products and emissions to cover determine whether a policy delivers emissions reductions or shifts emissions across borders. Targeting emissions-intensive, widely traded materials can deliver global climate benefits while keeping the policy manageable for governments and businesses.

Global Signals Matter. Border carbon adjustments do more than protect domestic industry. When well designed, they encourage trading partners to strengthen their own climate policies, shifting global markets towards cleaner products and reducing global emissions.

What are border carbon adjustments?

Border carbon adjustments, also called carbon border adjustment mechanisms (CBAMs), aim to equalize the price paid on the carbon embedded in traded goods so that domestic and foreign producers face the same costs. BCAs allow countries to take more ambitious climate actions while protecting domestic producers from imports not subject to carbon pricing and to encourage trade partners to adopt their own carbon pricing policies. Accounting for the differences in climate ambition between countries through the emissions embedded in traded goods may prevent the shift of production and emissions to countries with more emissions intensive production processes and weaker environmental standards, known as carbon leakage.

Carbon leakage results from shifting production from countries with strict emissions policies and carbon prices to those with less stringent policies. Similarly, investment flows may shift to favor those countries that lack burdensome regulations, impeding the competitiveness of firms in jurisdictions with strict climate policies.[1] The result is that countries with high climate ambition can lose economic competitiveness and market share as they seek to reduce their emissions, all while their emissions reductions are offset by production increases in countries with relatively lower climate ambition.

To date, evidence of carbon leakage is mixed. Most studies have found little evidence of leakage, but much of the existing research on carbon leakage was completed while carbon prices were low and there were significant sectoral exemptions from climate policies.[2] More recent studies have found significant leakage rates, particularly in small, open economies such as individual European Union countries.[3] Despite mixed evidence, the risk of carbon leakage remains a concern for policymakers in countries with ambitious climate policies and emissions-intensive industries. The political risk is especially pronounced for countries with steadily rising carbon prices.

BCAs impose levies on the emissions embedded in imported goods. Currently enacted and proposed BCAs align the price importers pay with a domestic carbon price. By taking this approach, countries implementing BCAs may claim that they do not discriminate between domestic and imported products, rather imposing the same burden on both. This non-discriminatory approach could prevent BCAs from being found to be non-compliant with World Trade Organization (WTO) agreements. Recent U.S. congressional proposals, however, include carbon tariffs that exclusively apply to imported goods and are based on the difference in national emissions intensity associated with the production of covered products.[4] Such policy proposals are unlikely to be found compliant if challenged at the WTO, potentially increasing the likelihood of trade disputes and retaliation.

Policy design

At first glance, the design of a BCA appears straightforward: it is typically determined by a carbon price (in dollars per ton of emissions), the emissions intensity associated with the production of a covered good (in tons of carbon dioxide equivalent emissions per unit of the good), and the quantity of the good. That said, some U.S. BCA proposals substitute the difference in emissions intensity of a covered good between the country of production and the United States.

However, there are multiple factors that policymakers must also consider when designing a BCA. These include how to determine the price of emissions, what emissions should be covered, how to calculate the emissions associated with a specific item, and how it will interact with foreign carbon pricing policies.

Design choices must also consider:

- **Fairness**: Does the policy benefit specific entities within an industry, or certain industries over others?
- **Ease of administration**: Is the policy difficult to implement and administer?
- **Data availability**: Are importers able to obtain, report, and verify the necessary emissions data? Are producers able to measure said data?
- **WTO compatibility**: Does the policy adhere to the country's trade agreements and the WTO agreements, aimed at preventing discriminatory trade practices?
- **Interaction with foreign carbon pricing policies**: Does the policy recognize similar programs in other jurisdictions and adjust the fees accordingly?
- **Emissions reduction**: Does this policy lead to emission reductions domestically as well as abroad?
- **Competitiveness**: Does the policy protect the competitiveness of covered industries? If so, is this protection durable or static? Does it negatively impact downstream industries?

Adjusting for domestic climate policy

The fundamental goal of a BCA is to equitably apply the local jurisdiction's carbon price to imports by levying a fee or tariff. Ultimately, the approach chosen to adjust for imported carbon emissions will reflect a country's enacted climate policies, or lack thereof. Additionally, the approach will determine the complexity of the BCA and the potential for trade partners to dispute the measure bilaterally and at the WTO. Illustrating the potential for BCAs to create trade tensions, in May 2025 Russia became the first country to challenge the EU CBAM at the WTO, alleging that it is a disguised and discriminatory restriction on trade.[5]

Domestic climate policies for which a BCA can adjust include:

- **Explicit carbon pricing policies**: Fundamentally, the aim of a BCA is to create a level playing field by imposing the same cost on imported goods that domestic producers face under mandatory climate policies. If those policies involve an explicit carbon price, such as a carbon tax or the price of an allowance in an emissions trading system (ETS), then a BCA may readily apply that price to imported goods. Replicating an explicit carbon price represents the most straightforward and fairest way to implement a BCA. The most developed example of this approach is the EU CBAM, which is based on the explicit market price of an allowance in the EU ETS.[6] The UK's planned CBAM will similarly apply a fee on covered imports based on the UK ETS price.[7]
- **Performance standard with a fee**: An alternative is to establish an emission performance standard for domestic products. In this case, the BCA would apply the same emission performance standard to imports. Performance standards establish benchmarks expressed in terms of emissions intensity and can apply a fee to those producers whose product emission intensity exceed the benchmark. Under this approach, both domestic producers and importers in each covered industry would face a fee for each ton of emissions in excess of a common industry benchmark. While this constitutes a form of market-based policy, it differs from a conventional carbon tax in that it levies a price only on those emissions above the limit set by the performance standard. Sectoral benchmarks could be tied to average emissions intensities, best in class performance, or some other metric. Whatever the metric, the sectoral benchmark would need to tighten over time to incentivize further emissions reductions.

- **Implicit price of climate regulation**: In the absence of a domestic carbon pricing program, a BCA could, in theory, be based on an implicit price—equivalent to the estimated marginal cost to domestic producers associated with reducing greenhouse gas emissions in compliance with relevant domestic laws, regulations, and executive actions. Using an implicit price is the most difficult and least transparent approach to implementing a BCA. Calculating an accurate, usable implicit price based on the average marginal cost of controlling greenhouse gas emissions would be complicated, especially when considering differences between local, regional, state, and national programs. A BCA based on an implicit price is also more likely to lead to WTO disputes, as it is harder to design a fair methodology and to argue that it is not discriminatory against imports. Moreover, such an approach could shelter domestic producers while failing to incentivize domestic emission reductions.

Ultimately, the design of a BCA will reflect an implementing country's domestic climate policies and political priorities. A BCA may blend elements of the above options with implications for the complexity of implementation and its perceived legitimacy. Provided the goal of a BCA is reducing traded emissions and encouraging higher levels of climate ambition, perceived legitimacy will play a crucial role in heading off potential trade disputes.

In levying a BCA to adjust for domestic climate policies, policymakers have several options when determining how the value of the tariff or fee is calculated and how it will be levied:

- A **specific tariff** is based on the physical quantity of the import. In the context of an explicit carbon pricing policy, a specific tariff could be implemented as a fixed fee per ton of carbon dioxide embedded in imported covered goods. Under this approach, a specific tariff avoids the influence of product price fluctuations and places greater emphasis on pricing actual emissions in traded products. The price per ton of carbon dioxide should reflect domestic policy to avoid the perception of being arbitrary or discriminatory.
- An **ad valorem tariff** is calculated as a percentage of the value of the covered product. Implementing a BCA based on an ad valorem tariff in connection with a domestic carbon price is challenging. Price fluctuations and product differences mean that the ad valorem tariff equivalent to a domestic carbon price would have to be calculated for each shipment of covered product, increasing the administrative complexity associated with the policy.

  Policymakers could attempt to avoid this complexity by applying a different price for imports and domestic goods. For example, the Foreign Pollution Fee Act of 2025 (S. 1325 of the 119th Congress) creates an ad valorem tariff based on the difference in emissions intensity between producing the good abroad and in the United States, without implanting a carbon price for domestic producers. While theoretically possible, implementing a carbon tariff without reference to an explicit domestic price would likely raise further concerns of protectionism among trading partners, risking retaliation and damaging the policy's legitimacy.
- A **tariff rate quota** imposes a lower tariff rate up to a specified quantity (i.e., quota) of imported goods, with a higher tariff rate on imports once the quota has been reached. Applying a BCA through a tariff rate quota would allow for differentiated treatment based on volume and emissions content. This approach would inherently raise questions of fairness, discrimination, and the policy's actual relationship to emission reductions.

Product coverage

The question of which goods a BCA will cover is fundamental to the policy's design. In deciding this, policymakers must develop criteria that guide product coverage.

Existing BCA proposals have focused product coverage on those goods whose domestic producers face high costs from emissions reduction requirements and that are exposed to highly competitive international markets. Foreign competitors producing these goods are likely to be more carbon-intensive than their domestic counterparts.

Three main approaches have been used to determine covered products:

- **List of specified products**: BCAs have generally covered energy-intensive, trade-exposed (EITE) products (e.g., iron, steel, aluminum, cement, glass, pulp and paper, chemicals, and industrial ceramics) since these goods are most at risk of carbon leakage due to the cost burdens created by domestic climate policies. However, trading partners may view these policies as protectionist if they fail to justify the inclusion of the selected product categories or industries, specifically with reference to an explicit cost imposed on domestic producers. Without explicit justification this could increase the risk of retaliatory trade measures.
- **Intensity metrics**: BCAs could specify eligibility criteria in legislation based on metrics such as carbon intensity or energy and trade intensity. An agency would then be tasked to administer and develop those metrics. For example, goods with embodied carbon emissions per pound of product above a certain threshold relative to their value would be covered.[8] The degree of international trade in a sector is also a useful metric for determining whether a good should be covered by a BCA. Together, emissions and trade intensities have been used as metrics to determine eligibility for carbon leakage protections under carbon pricing policies (e.g., EU ETS).[9]
- **List of specified products and intensity metrics**: BCAs could take a combination approach by specifying a list of covered product categories or industries, accompanied by intensity metric-based criteria for including or removing products from coverage. Similarly, this approach requires an agency to administer and monitor these metrics. For example, legislation could require an agency to use carbon- or trade-intensity metrics to determine covered products and goods within specified industrial sectors. This approach would be a more targeted way to address cost and competitiveness concerns that arise as producers, both foreign and domestic, begin to comply with the policy.

Deciding a BCA's product scope and coverage requires balancing breadth of coverage with administrative burden. A BCA on all imports would be difficult to administer given many complex or finished goods (e.g., cars, electronics, and appliances) are made up of numerous components from different countries. Should policymakers want to implement a BCA that includes manufactured finished goods, the importer would have to know the emissions embodied in the component parts that make up a finished good. It is easier to implement and administer a BCA on basic industrial materials and fuels (e.g., steel, aluminum, and cement). These are also goods for which the rationale of implementing a BCA is strongest because they have high emissions intensities relative to their value and are highly traded. Furthermore, international markets set the prices for these goods, making them more susceptible to loss of competitiveness. However, since primary goods make up a smaller percentage of international trade than finished goods, limiting a BCA's coverage to primary goods could produce unintended consequences like shifting manufacturing and embodied emissions toward finished goods.

BCAs could raise the price of covered primary product imports. In turn, this could increase the price downstream manufacturers pay for covered primary goods, raising the final cost of domestically produced finished goods. As those costs

are passed on to consumers, one could see increased imports of manufactured products (i.e., finished goods) containing high-carbon primary goods, potentially defeating the policy's objectives of reducing emissions and preserving domestic economic competitiveness. To address this issue, BCAs may include provisions to expand product coverage to include manufactured products that contain a significant proportion of EITE goods. However, the viability of applying a BCA to complex finished goods remains untested.

Emissions accounting

One of the greatest challenges associated with implementing a BCA is calculating and accounting for the emissions involved in the production of both domestic and imported covered goods. Several greenhouse gas accounting standards exist, but many of these focus on business-, project-, or facility-level emissions calculation. BCAs, on the other hand, levy fees at the product level. Existing BCAs (e.g., EU CBAM) therefore calculate the fee levied based on the emissions embodied in individual units of traded products, requiring additional granularity. However, the granularity of emissions accounting associated with a covered product may vary based on policymakers' priorities.

There are three main considerations when determining a BCA's emissions accounting framework:

- **Gases covered**: The BCA could cover only carbon dioxide emissions or include other select greenhouse gas emissions (expressed in terms of carbon dioxide equivalent) associated with a covered good. Carbon dioxide emissions account for about 80 percent of U.S. greenhouse gas emissions and about three-quarters of industrial sector emissions.[10] Methane makes up most of the remaining emissions from the industrial sector. Broadening emissions coverage to include non-carbon dioxide gases allows for reductions in short-lived climate pollutants (e.g., methane), however increases the complexity of accounting. These pollutants have a relatively short atmospheric lifetime, albeit with a higher warming effect compared to carbon dioxide.
- **Scope of emissions**: BCAs can also vary in their coverage of emissions along product value chains and life cycles. A BCA could cover only direct emissions associated with the production of a covered good (i.e., scope 1 emissions). Alternatively, it could include scope 1 emissions and indirect emissions associated with production, which would include purchased electricity, heat, steam, and cooling (i.e., scope 2 emissions). A broader approach may account for other sources of indirect emissions, including those associated with the materials used as inputs in the production process (i.e., upstream scope 3 emissions), or extend to include transportation or consumer use (i.e., downstream scope 3 emissions).

  Covering upstream and downstream scope 3 emissions adds administrative complexity. That said, including some categories of upstream scope 3 emissions allows a BCA to account for the emissions embedded in some inputs used for manufactured or finished goods. If a BCA covers finished goods, then excluding upstream scope 3 emissions could shift the risk of carbon leakage down product value chains to finished goods that contain large amounts of covered primary materials.

  Moreover, broadening the scope of emissions covered by the BCA could make implementation more challenging, as companies may have disparate levels of access to data required for compliance. Ensuring access to reliable, third party-verified data will be essential for calculating the actual emission associated with a covered import and for determining the associated fee.

Furthermore, the lack of interoperability across greenhouse gas accounting standards complicates emissions accounting for traded goods.[11] Existing emissions monitoring, reporting, and verification methodologies may not be suited for measuring product-level embedded emissions as required for compliance with existing examples of BCAs.[12] Some have argued that a ledger-based approach modeled on generally accepted accounting principles offers a way to achieve needed levels of international interoperability, but this approach has yet to generate government backing for use with a BCA.[13]

- **Aggregation level**: Emissions can be accounted for at the product, facility, company, sector, or national level. Aggregating emissions data at the national level is less administratively complex than aggregating at the product level, and may offer a way forward where reliable, verifiable product-level emissions data is not available. For example, a BCA could use national industry default values to compare the emissions intensity of domestic and imported covered products. However, a policy using this approach should provide the opportunity for businesses to provide facility-level data demonstrating that their emissions are lower than the default, reducing the fee paid. While this approach could incentivize foreign firms to account for their emissions and to decarbonize, it also raises questions regarding the fairness of using country-level default values.

  Using national- or sectoral-level emissions data could, in theory, incentivize exporting countries to implement decarbonization policies to preserve market access for their producers. That said, failure to differentiate between clean and dirty facilities, by using a national or sectoral emissions average, could also disincentivize dirty producers and production facilities from decarbonizing as they may benefit from the actions of cleaner facilities.

  Using product- or facility-level data can make it easier for foreign producers to engage in resource shuffling, which refers to an effort to reallocate production to reduce exposure to a BCA or other climate policy without reducing their business' overall emissions. For instance, a company that makes aluminum in two facilities, respectively powered by hydropower and fossil fuel, could export aluminum from the hydropowered facility to countries with BCAs while continuing to sell high-emissions goods to countries without a BCA.

Export rebates

Some proposed BCAs, specifically U.S. legislative proposals, have paired a domestic carbon fee and BCA with an export rebate for domestic producers.[14] These proposals would place a carbon fee on domestic products and a BCA on imports. When a domestically produced covered product is exported, the value of the carbon fee may subsequently be returned to domestic producers. Supporters of this policy design claim that it ensures domestic manufacturers' exports are not disadvantaged in foreign markets that lack a similar price on carbon. However, introducing an export rebate creates additional administrative complexity, reduces the amount of revenue generated by the policy, and would likely qualify as a prohibited export subsidy under the WTO's Agreement on Subsidies and Countervailing Measures.[15] Beyond raising the risk of trade disputes and retaliatory measures, including export rebates could reduce a BCA's effectiveness as an emissions reduction policy, and thereby reduce its legitimacy.

Reciprocity with other jurisdictions

As more countries adopt carbon pricing and BCAs, the question of how these policies should interact arises. A BCA could be designed to suspend or revise the fee imposed based on foreign countries' climate policies. In other words, importers could reduce the fee they pay by providing evidence their imports have already been subject to a carbon price in another jurisdiction. For example, the EU CBAM allows importers of covered products to submit evidence that their goods have been subject to an explicit carbon price (e.g., an ETS in the jurisdiction of production), and receive a corresponding reduction in their CBAM obligation.[16] Some U.S. legislative proposals in the 119th Congress (2025–26), for example the Foreign Pollution Fee Act of 2025 (S. 1325), include provisions to reduce import fees for countries that negotiate international partnership agreements, though it does not include specified climate policy requirements.

Climate Clubs

The difficulties of addressing a global challenge like climate change through unilateral action or through the United Nations Framework Convention on Climate Change (UNFCCC) has led to calls for smaller groups of countries to align on climate policy priorities, known as "climate clubs" or "carbon clubs." As originally conceived by academics, these clubs would require participating countries to agree on a shared minimum carbon price and to implement BCAs on imports of covered goods originating from countries not party to the club.[17] The underlying logic is that the club will spur global climate ambition and reduce the risk of carbon leakage, as countries outside the club implement more effective climate policies to gain access to the club members' markets.

While the original concept of carbon or climate clubs assumes a shared carbon pricing floor, membership could be based on the more basic premise of a group of countries whose trade in primary goods is not subject to emissions-based fees or tariffs, contingent on some shared recognition of club members' respective policies. These clubs are basic because they do not include provisions to expand the scope of membership or actively incentivize member nations to increase their ambition in reducing industrial sector emissions. Furthermore, this basic structure does not require members to act in a coordinated and complementary fashion.

While climate clubs could be valuable institutions for coordinating climate policy and encouraging greater ambition in decarbonization, their potentially exclusive design could be interpreted as violating WTO rules on discriminating between trade partners and result in trade disputes.[18]

Under Germany's presidency, the Group of Seven (G7) took a tentative first step toward a climate club. G7 leaders agreed to establish an open, cooperative Climate Club to support the implementation of the Paris Agreement. In December 2023, the G7 and 27 other countries formally launched the Climate Club at the UNFCCC's 28th Conference of Parties (COP28) in Dubai.[19] With an initial focus on industrial decarbonization in the steel and cement sectors, this forum could be considered an industrial decarbonization club. Since its founding, the Climate Club has worked to address the risks associated with industrial decarbonization and has worked to fast-track industrial decarbonization in emerging markets via its Global Matchmaking Platform.[20] While these are positive steps for global industrial decarbonization, the Climate Club is not a climate club as traditionally defined (i.e., centered around a shared carbon pricing floor).[21] Considerable progress remains to be made in aligning national approaches to greenhouse gas emissions accounting and industrial decarbonization pathways.

Treatment of least developed countries

Policymakers implementing BCAs must also consider how the policy will impact developing countries and whether to provide special and differentiated treatment that could reduce the burden of such a policy. For example, some modeling has shown that the EU CBAM, which does not include specific carveouts for least developed countries, could impact the socioeconomic development of some developing countries.[22] That said, the level of exposure to CBAM will vary between countries and even between firms within countries.

Policymakers could address this issue several ways. The BCA could exclude some developing countries (e.g., low- and lower middle-income countries) that produce relatively small portions of total EITE goods exports. A BCA could also provide an extended rollout period for developing countries, allowing them additional time to prepare for the policy by implementing climate policies and emissions accounting systems before it applies to imports originating in their jurisdiction. Alternatively, policymakers may choose to implement a BCA that treats countries equally regardless of their level of economic development, while mitigating some of the burden by providing least developed countries with financial and technical assistance to adopt low- and zero-carbon solutions.

Revenues

A BCA raises revenues from the fee levied on covered imports. The resulting revenues could be applied to different policy goals, including but not limited to contributing to general revenue, supporting innovation and deployment of new technologies, building climate resilience, supporting lower-income households, or financing climate-friendly development in other countries.

Conclusion

International trade plays a vital role in the modern economy and can act as a facilitator for climate change mitigation. Trade inherently contributes to greenhouse gas emissions and increased attention is being paid to the emissions embedded in traded goods. BCAs offer a unique opportunity to align trade and climate policy to account for these emissions embedded in trade. Accounting and adjusting for these emissions could support greater climate ambition and accelerate the advancement of a net-zero economy. Policymakers considering implementing a BCA must grapple with the implications of policy design and in doing so should grant particular attention to ensuring that the policy effectively reduces domestic and global emissions while minimizing unnecessary barriers to international trade. Disruptions may arise not only from the duties levied by the BCA itself, but also how the policy interacts with foreign counterparts. International cooperation will be essential to preventing the creation of new frictions that impede climate progress. Working through these challenges, BCAs are beginning to proliferate across the world and well-designed BCAs will demonstrate their utility in the global fight against climate change.

Endnotes

1 World Bank Group, *Report of the High-Level Commission on Carbon Pricing and Competitiveness* (The World Bank, 2019), https://openknowledge.worldbank.org/bitstream/handle/10986/32419/141917.pdf.

2 Joe Aldy and Billy Pizer, *The Competitiveness Impacts of Climate Change Mitigation Policies*, Discussion Paper 15–73 (Harvard Project on Climate Agreements, 2015), https://www.belfercenter.org/sites/default/files/pantheon_files/files/publication/dp73_aldy-pizer.pdf.

3 Florian Misch and Philippe Wingender, *Revisiting Carbon Leakage* (International Monetary Fund, 2021), https://www.imf.org/en/Publications/WP/Issues/2021/08/06/Revisiting-Carbon-Leakage-462148; Antoine Dechezleprêtre et al., *Carbon Border Adjustments: The potential effects of the EU CBAM along the supply chain*, OECD Science, Technology and Industry Working Papers, No. 2025/02 (OECD Publishing, 2025), https://doi.org/10.1787/e8c3d060-en.

4 Brock Burton, Olivia Windorf, and Jason Ye, *Developments in Border Carbon Adjustments in the 119th Congress and Abroad* (Center for Climate and Energy Solutions, 2026), https://www.c2es.org/document/developments-in-border-carbon-adjustments-in-the-119th-congress-and-abroad.

5 Request for Consultation by the Russian Federation, *European Union and its Member States –– Carbon Border Adjustment Mechanism*. WTO Doc. WTO/DS639/1 (May 12, 2025), https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/G/L/1573.pdf&Open=True.

6 European Commission, "Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism," (European Commission, May 10, 2023), http://data.europa.eu/eli/reg/2023/956/oj.

7 HM Revenue & Customs, "Draft Finance Bill Measures: Part 1 - carbon border adjustment mechanism," (HM Revenue & Customs, April 24, 2025), https://assets.publishing.service.gov.uk/media/67fe8396ed87b81608546750/Draft_legislation_Carbon_Border_Adjustment_Mechanism.pdf.

8 Raymond Kopp, William Pizer, and Kevin Rennert, *Industrial Decarbonization and Competitiveness: A Domestic Benchmark Intensity Approach* (Resources for the Future, 2022), https://www.rff.org/publications/issue-briefs/industrial-decarbonization-and-competitiveness-a-domestic-benchmark-intensity-approach.

9 European Commission, "Carbon Leakage," accessed November 5, 2025, https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/free-allocation/carbon-leakage_en.

10 EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2023*, EPA 430-R-25-003 (U.S. Environmental Protection Agency, 2025), https://library.edf.org/AssetLink/145ky510ew61fk1tq5c2klp5kq5yp33j.pdf.

11 Brock Burton et al., *G7 Leadership on Interoperable CBAMs: The US-EU TTC Negotiating Model*, Policy Brief, Task Force 3: Environment, Energy and Sustainable Development (Centre for International Governance Innovation, 2025), https://www.c2es.org/document/g7-leadership-on-interoperable-cbams-the-us-eu-ttc-negotiating-model.

12 Milan Elkerbout and Katarina Nehrkorn, *Trade-Friendly Climate Policies: The Promise of "Interoperability,"* Working Paper 24-11 (Resources for the Future, 2024), https://media.rff.org/documents/WP_24-11.pdf; Matt Porterfield et al., *Counting Carbon: Voluntary and Mandatory Emissions Reporting Programs* (Climate Leadership Council, 2023), https://clcouncil.org/reports/Counting-Carbon.pdf.

13 Karthik Ramanna et al., "A Proto-Standard for Carbon Accounting and Auditing using the E-Liability Method (v. 2)" (working paper, August 20, 2025), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5427956; Ernest Moniz et al., *Carbon Accounting: Framework for a Comprehensive New Product- and Entity-Level, Ledger-Based Carbon Accounting System* (EFI Foundation, 2025), https://efifoundation.org/wp-content/uploads/sites/3/2025/06/EFI-Foundation-Carbon-Accounting-Framework-for-a-Comprehensive-New-Product-and-Entity-Level-Ledger-Based-Carbon-Accounting-System.pdf.

14 Brock Burton, Olivia Windorf, and Jason Ye, *Developments in Border Carbon Adjustments in the 119th Congress and Abroad*.

15 Agreement on Subsidies and Countervailing Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1869 U.N.T.S. 14.

16 "Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism," (European Commission, May 10, 2023).

17 William Nordhaus, "Climate Clubs: Overcoming Free-riding in International Climate Policy," *American Economic Review* (January 2015): 1339–1370, https://ycsg.yale.edu/sites/default/files/files/nordhaus-climate-clubs.pdf.

18 GATT 1994: General Agreement on Tariffs and Trade 1994, Art. XXIV, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 187, 33 I.L.M. 1153 (1994)

19 The Climate Club, "Statement by the Climate Club – Accelerating the Decarbonisation of Our Industries," press release, December 1, 2023, https://climate-club.org/wp-content/uploads/2023/11/231122_Statement-by-the-Climate-Club_FINAL_Layout.pdf.

20 "Global Matchmaking Platform," Climate Club, accessed November 7, 2025, https://globalmatchmakingplatform.org.

21 William Nordhaus, "Climate Clubs: Overcoming Free-riding in International Climate Policy."

22 United Nations Conference on Trade and Development, *A European Union Carbon Border Adjustment Mechanism: Implications for developing countries*, UNCTAD/OSG/INF/2021/2 (United Nations Publications, 2021), https://unctad.org/system/files/official-document/osginf2021d2_en.pdf; Maryla Maliszewska et al., "How developing countries can measure exposure to the EU's carbon border adjustment mechanism," The Trade Post (blog), The World Bank Group, July 2, 2025, https://blogs.worldbank.org/en/trade/how-developing-countries-can-measure-exposure-eus-carbon-border-adjustment-mechanism.