



# Trade policies and emissions reduction: establishing and assessing options

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## Contents

|  |    |
|--|----|
| Section A: Introduction and key messages .....   | 4  |
| Section B: A taxonomy of trade policy options .....  | 10 |
| Section C: The trade policy landscape relevant to emissions reduction: the UK and beyond         | 20 |
| 1. Introduction .....  | 20 |
| 2. Overview .....  | 21 |
| A. Multilateral negotiations .....   | 21 |
| B. Free Trade Agreements .....   | 22 |
| C. Other areas of trade policy .....   | 23 |
| 3. Embodied emissions: manufactured products, oil and gas .....                                  | 24 |
| A. Autonomous approaches .....   | 24 |
| B. Plurilateral approaches .....   | 33 |
| C. International cooperation .....   | 35 |
| 4. Embodied emissions: agricultural deforestation .....  | 38 |
| A. Autonomous approaches .....   | 38 |
| B. Plurilateral approaches .....   | 41 |
| 5. Subsidies .....   | 41 |
| A. The relationship between UK subsidies and WTO rules .....                                     | 41 |
| C. Fertiliser subsidies .....  | 43 |
| D. UK renewables subsidies .....   | 45 |
| Section D: Key design decisions for a border carbon adjustment (BCA) and product standards ..... | 47 |
| 1. Introduction .....  | 47 |
| 2. BCAs and product standards: common issues .....   | 50 |
| A. Scope .....   | 50 |
| B. Developing countries .....  | 67 |
| C. Climate clubs .....   | 70 |
| D. Applicability to exporters .....  | 75 |
| 3. BCA-specific issues .....   | 80 |
| A. Pricing mechanism .....   | 80 |
| B. Pricing strategy – use of benchmarks .....  | 83 |
| C. Free allowances .....   | 85 |
| 4. Product standard-specific decisions .....   | 87 |
| A. Mandatory minimum standards – to whom do they apply? .....                                    | 87 |

|   |     |
|---|-----|
| B. Mandatory minimum standards – what do they apply to?.....  | 93  |
| 5. Relative merits of standards and price-based instruments.....  | 98  |
| Section E: Route map – practical steps for implementing BCAs and/or embodied emissions product standards..... | 101 |
| 1. Introduction .....   | 101 |
| 2. Scenario 1: Border Carbon Adjustment .....   | 105 |
| A. Checklist for Scenario 1 .....   | 105 |
| 3. Scenario 2: Introduction of mandatory minimum standards for embodied emissions                             | 111 |
| A. Checklist for Scenario 2 .....   | 111 |
| 4. Scenario 3: Extend UK ETS to imports of goods covered by ETS .....   | 118 |
| 5. Concluding remarks on the route map .....  | 118 |

Acronyms:

|         |   |
|---------|---|
| BCA     | Border Carbon Adjustment  |
| EU CBAM | European Union Carbon Border Adjustment Mechanism                                       |
| ETS     | Emissions Trading System  |
| GASSA   | US – EU Arrangements on Global Steel and Aluminium Excess Capacity and Carbon Intensity |
| NTB     | Non-Tariff Barrier  |
| TBT     | Technical Barrier to Trade  |
| WTO     | World Trade Organisation  |

## Section A: Introduction and key messages

### Introduction

The CCC commissioned the University of Sussex (via the UK Trade Policy Observatory and the Centre for Inclusive Trade Policy) and Vital Economics to review UK trade policy options to:

- Reduce the risk of carbon leakage and competitiveness impacts to UK industry who are investing in emissions-reduction measures; and
- Reduce the UK's carbon footprint and consumption emissions.

To do this, our report first provides broader context for the UK's trade policy options, by setting out recent and relevant developments. It then analyses practical and policy implications of UK introducing specific measures to address leakage and consumption emissions. These are **border carbon adjustments (BCA)**, which price embodied emissions in imported products, and **product standards**, which require that imported products fall below embodied emissions thresholds. Both aim to extend domestic climate regulatory requirements to imported products. The UK currently applies neither, but is considering the introduction of both; this Report is written to help inform CCC advice for the UK Government.

The report is structured as follows:

- [Section B](#) provides a taxonomy of trade policy options for supporting emissions reduction in a summary table;
- [Section C](#) provides an overview of the current trade policy landscape relevant to emissions reduction in the UK and beyond;
- [Section D](#) assesses key design decisions for the introduction of a UK BCA and for product standards addressing embodied emissions; and
- [Section E](#) sets out a route map showing the practical steps required to implement those policies.

The UK has pledged to achieve net-zero carbon emissions by 2050 while championing open multilateral trade and pursuing new trade relationships and agreements. Achieving leadership in both areas requires ensuring coherence between them. A core challenge for this coherence is addressing impacts of UK consumption on global emissions. As the CCC sets out, this can be divided into two overlapping concerns: carbon leakage and broader consumption emissions.

### Carbon leakage

Countries with high carbon pricing and regulatory costs, like the UK, risk carbon leakage: production emissions moving to less regulated countries. Optimally, countries would cooperate internationally to accelerate the development and deployment of clean goods and technologies and the UK has been involved in various discussions about how to achieve this. In the meantime, concerns about the risk of carbon leakage have prompted the EU to propose imposing domestic carbon prices on imported products through a Carbon Border Adjustment Mechanism (CBAM). While details are still being finalised, this is poised to

replace, at least partially, the EU's existing mitigations to manage carbon leakage risk, primarily free allowances under its EU Emissions Trading Scheme. The imminent introduction of EU CBAM leads to the question of whether the UK will follow suit.

### **Consumption emissions**

Consumption emissions differ from leakage in that they do not result directly from UK climate pricing and regulation, but rather UK consumption more broadly. The CCC estimates that 46% of the UK's consumption emissions took place outside UK territory.<sup>1</sup> According to the Office for National Statistics' 2019 estimates<sup>2</sup>, this means that the UK has higher per-head net-imports of carbon dioxide than either the US or Japan. Conforming with the general approach set out in the UNFCCC and the Paris Agreement, the UK's net-zero target focuses largely on production, not consumption, emissions.<sup>3</sup> However, if the UK simply outsources, rather than reduces, its overall emissions, it will not address its global contribution to climate change.

Both of these issues point to the interconnectedness of trade and climate policy. The UK cannot fully achieve its climate objectives without implicating its trade strategy and trade flows. Further, the UK may wish to impose additional trade measures to address the risk of leakage and its overall consumption emissions.

### **Focus of the report**

This report is primarily concerned with decarbonisation of industrial sectors: oil and gas, primary commodities and manufactured products. Trade measures for emissions reduction for agriculture, fisheries and forestry are considered in a companion report by Ricardo.<sup>4</sup>

It foregrounds trade policy not domestic policy options. We assume that the UK Government will maintain its Emissions Trading Scheme (ETS) as the primary way that it prices carbon. As the UK progresses toward its net-zero emissions by 2050 target, this picture may change. Some speculation about potential future trajectories is necessary, but a full analysis lies beyond our remit.

Finally, while we focus on the introduction of new charges and regulations on embodied emissions, clearly this does not comprise a comprehensive approach to supporting a low carbon transition. Trade and climate diplomacy demand a broader perspective, notably through providing climate finance, and other forms of support, for developing countries to decarbonise their economies. This merits clarification at the outset.

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<sup>1</sup> Climate Change Committee, [Reducing UK emissions: 2020 Progress Report to Parliament](#) (June 2020).

<sup>2</sup> Office for National Statistics, [The decoupling of economic growth from carbon emissions: UK evidence](#) (Oct 2019).

<sup>3</sup> The net-zero target, as set out in the UK Climate Change Act (2008), has recently been revised to include emissions from shipping and aviation, and provides scope for international carbon markets; other than this, the emission abatement goal is domestic.

<sup>4</sup> Ricardo Energy & Environment (2022) TRADE POLICIES AND EMISSIONS REDUCTION: ESTABLISHING AND ASSESSING OPTIONS - Agriculture and deforestation.

## 2. Key messages

Here we outline core findings from all sections of the Report. Some are cross-cutting, and some align with specific sub-sections of the Report. We have indicated which section is broadly most relevant to each without replicating the structure of the Report in full.

**1) The need for a global perspective.** A key cross-cutting message that emerges from the Report's contextual analysis (**Sections B and C**) is that the UK is not acting alone. This has important implications for its trade policy decisions:

**i)** Developing and applying embodied emissions standards and charges is a dynamic area of trade policy, such that inaction also has costs.

**ii)** Primarily, the EU's planned introduction of CBAM could result in new administrative requirements for UK exporters, trade diversion to the UK, and disagreement about whether and how CBAM should be applied in Northern Ireland. To address these issues, the UK must coordinate its policies with the EU.

**iii)** Clear and transparent methods for assessing embodied emissions are crucial for ensuring that trade policies are inclusive. This is an active area of plurilateral cooperation in which the UK has a role to play. A public- and private-sector learning process over the next few years may reduce the technical challenges.

**iv)** The current weakness of the WTO dispute settlement system increases volatility. Designing regulation in a manner that takes seriously conformity with WTO requirements is an essential element of trade diplomacy.

**2) Balancing competing objectives.** The report applies a conceptual framework for analysing policy design of BCAs and product standards (**Section D**):

**i)** Key objectives of policy design for BCAs or product standards include 1) **environmental ambition** in addressing the risk of leakage; 2) **technical feasibility** for firms and Government/verifiers; and 3) **fairness and equity**. Fairness and equity has a **domestic** dimension (for UK consumers and firms) and an **international** dimension for UK trade partners (WTO non-discrimination) and developing countries (Common but Differentiated Responsibility). Policy design choices should be based upon optimising these objectives to the extent possible, recognising that trade-offs between them may be inevitable.

**3) Policy design for BCA and product standards on embodied emissions.** The Report has more specific findings on design aspects (**Section D**).

**i)** Where BCAs or product standards should apply

- As it extends UK carbon prices to imported products, BCA is best employed to address the impact of UK climate policies (specifically its ETS) and resultant concerns about carbon leakage in trade-exposed sectors. It is not optimal to address the wider issue of UK consumption emissions.
- The more limited the scope of emissions included and the sectoral coverage, the more feasible will a BCA be to implement. However, restricting BCA to direct

emissions for a few trade-exposed primary commodities risks failing to have a significant effect on carbon leakage. Phased introduction can allow for a learning process through which firms adjust.

- Product standards can be introduced instead of BCAs, or applied more broadly to non-priced sectors to reduce consumption emissions. In either case, the UK must ensure that such standards are also applied domestically in order to conform with WTO non-discrimination requirements.

#### **ii) Developing countries**

- Providing additional support for developing countries is in keeping with the spirit of the Paris Agreement's principle of Common but Differentiated Responsibilities and Respective Capacities (CBDR-RC). Such support can take place through administering regulation differently, for example forgiving Least Developed Countries BCA fees and/or phasing in requirements more slowly.
- It can also take place through directing BCA revenues or other climate finance to Least Developed Countries' (LDC) and providing training in the implementation of UK requirements.

#### **iii) Climate clubs**

- Participation in nascent climate clubs and alliances, through which countries waive regulatory requirements or fees and cooperate toward building low-carbon supply chains, is crucial. It can 1) prevent new trade barriers with climate allies; and relatedly 2) help to ensure that the UK can feasibly implement new trade measures in a way that mitigates damage to its supply chains.
- Climate clubs that impose tariffs on non-participating countries risk WTO non-compliance. A key challenge is establishing equivalence between implicit (regulatory) and explicit carbon pricing. Participating countries can reduce the risk of non-compliance through basing membership on the requirement that participants have equivalent regulation, and ensuring that membership criteria are clear, transparent and open to all countries.

#### **iv) Applicability to exports**

- UK export competitiveness is a critical challenge for introducing BCA. If exporters receive rebates, this can undermine the perception that BCAs support climate objectives. A phased approach to export rebates based on emissions intensity can satisfy environment, WTO non-discrimination and industry objectives, but will increase technical complexity.

#### **v) Pricing**

- Compared with imposing a fixed price on carbon embedded in imports, linking a BCA to the UK ETS prices, as a 'shadow ETS', appears to be the most environmentally ambitious and non-discriminatory option. It does introduce technical complexity in verification.

- Similarly, requiring firms to calculate their actual embodied emissions, rather than relying on benchmarks (ie national or global averages) is the most environmentally-effective and non-discriminatory approach. However it is complex for firms and the UK should provide benchmarks where calculating actual emissions is not feasible.

**vi) ETS free allowances**

- The UK currently provides trade-exposed industries with free allowances to prevent carbon leakage. Phasing out free allowances upon introduction of BCA will contribute greatly to environmental coherence and WTO-compliance.

**vii) Scoping options for applying product standards**

- Product standards are a more uncertain element of our analysis, raising questions about the evolution of domestic policy (while we assume BCA extends an existing policy, the UK ETS).
- Product standards might be applied to purchasers, and take the form of due diligence requirements, or mandatory minimum embodied emissions requirements (mandatory minimums) for public and private procurement.
- Product standards might also be applied to producers, and set out mandatory minimums or requirements for the use of particular Best Available Techniques for manufacturing.
- Product standards are better-suited than BCAs to addressing a wider scope of consumption emissions.
- As with BCA, the complexity of assessing embodied emissions is a significant challenge. This is particularly true for manufactured products with multiple inputs.

**4) Practical steps for implementation.** In setting out steps required to implement BCAs or product standards (**Section E**), it highlights:

**i) Domestic steps**

- Coordination across a wide range of Departments is required, as well as industry consultation to inform the timing/structure of BCAs or product standards.

**ii) International steps**

- The UK should actively participate in discussions about developing methodologies for assessing embodied emissions which will aid in the implementation of any domestic policy actions.
- The UK must inform trade partners, in particular the EU and developing country partners, of plans to introduce BCA or product standards well in advance of their introduction.

**5) Policy package.** A final cross cutting message is that border measures such as BCAs and product standards are only one element of trade and climate policy.



**i)** A more comprehensive approach to supporting global decarbonisation includes actively supporting low carbon innovation and supply chains, including through green investment and climate finance, cooperation on the development of international standards, and technology transfer (among other tools and approaches).

We have not examined in depth all of the ways in which trade policy and climate change mitigation interact, but we hope that this analysis has provided a helpful overview of some of the key issues and questions confronting the UK in considering how to address leakage and consumption emissions going forward.

## Section B: A taxonomy of trade policy options

Key:

|   |  |  |                       |
|---|--|--|-----------------------|
| The UK does not currently use this trade policy option. | The UK currently uses this trade policy option, but it could be strengthened to support low carbon transition. | The UK currently uses this trade policy option, but it could be strengthened to support low carbon transition AND expanded sectorally. | Multi-lateral action. |
|---|--|--|-----------------------|

Hard and soft law categorisation derived from Abbott and Snidal<sup>5</sup>, based on obligation, precision and delegation.

| Trade policy option               | Description  | Sectoral scope  | Addresses leakage? | Hard/soft | Could this policy be implemented autonomously (i.e. without an FTA or sectoral agreement)? | Can the UK work with other countries on developing this policy? | Could this policy be implemented via an FTA or sectoral agreement (even if it is not necessary)? | Are there relevant international agreements or standards (existing or in development)?   |
|-----------------------------------|--|---|--------------------|-----------|--|---|--|--|
| <i>UK regulation (autonomous)</i> |  |   |                    |           |  |   |  |  |
| <b>Border Carbon Adjustment</b>   | A tariff or other fiscal measure imposed by countries that have a domestic carbon tax or Emissions Trading Scheme, or regulation they view as equivalent, on products from countries that do not face equivalent pricing or regulation | ETS-priced sectors subject to free allowances (energy-intensive, trade exposed industries). ETS-priced inputs of manufactured goods or non-priced sectors identified as being at risk of leakage (e.g. agriculture) | Y                  | Hard      | Y  | Y   | Y – Exemptions to BCA charges could be implemented cooperatively through climate clubs.          | Y – Paris Agreement Article 6(2) on internationally-transferred mitigation outcomes (ETS linkage) and Article 6(4) establishing a multilateral mechanism for emissions |

<sup>5</sup> K Abbot and D Snidal, [Hard and soft law in international governance](#) (2003) 54(3) International Organisation 421.

| Trade policy option                          | Description   | Sectoral scope  | Addresses leakage?                    | Hard/soft | Could this policy be implemented autonomously (i.e. without an FTA or sectoral agreement)? | Can the UK work with other countries on developing this policy? | Could this policy be implemented via an FTA or sectoral agreement (even if it is not necessary)?  | Are there relevant international agreements or standards (existing or in development)?                                     |
|--|---|---|---------------------------------------|-----------|--|---|---|--|
|  | in their country of origin.   | may be included but are more challenging to design and implement. |                                       |           |  |   |   | mitigation (global carbon market). Some discussions underway on harmonising carbon price accounting, e.g. IMF, World Bank. |
| <b>Emissions-based performance standards</b> | Standards on producers. These could take the form of binding carbon-related performance requirements (mandatory minimum) or benchmark requirements at best-in-class, potentially with flexible compliance. Only defined as a trade policy option if also extended to imported products. | Cross-sectoral  | Y – If extended to imported products. | Hard      | Y  | Y   | Y – Development of core standards conditioning tariff-free UK market access recommended by CCC, Trade and Agriculture Commission, National Food Strategy. Note conditional liberalisation differs from mandatory standards that bar entry for products that do not meet them. | Y – ISO standard. In development: UNIDO discussions; Clean Energy Ministerial.   |

| Trade policy option                             | Description  | Sectoral scope   | Addresses leakage?                                       | Hard/soft  | Could this policy be implemented autonomously (i.e. without an FTA or sectoral agreement)? | Can the UK work with other countries on developing this policy? | Could this policy be implemented via an FTA or sectoral agreement (even if it is not necessary)?   | Are there relevant international agreements or standards (existing or in development)?   |
|---|--|--|--|--|--|---|--|--|
| <b>Low carbon procurement</b>                   | Purchasers agree that they will only purchase in conformity with low carbon requirements. Impacts upon foreign producers to the extent that procurement is sourced from other countries. | Cross-sectoral   | Y – In that it supports markets for low carbon products. | Hard – If underpinned by mandatory requirements. | Y  | Y   | Y – Commitments on green procurement can be integrated into FTAs.  | Y – WTO Government Procurement Agreement promotes liberalisation of procurement, but is not green procurement focused.                               |
| <b>Liberalisation of environmental goods</b>    | Removal of tariffs on goods classified as 'environmental', within which some support the low carbon transition and climate adaptation.   | Cross-sectoral. UK's unilateral liberalisation of environmental goods has some climate-relevant omissions, e.g. electric vehicles. | N  | Hard   | Y  | Y   | Y – Can take place through FTAs as part of wider tariff reductions; also potentially Trade and Environmental Sustainability Structured Discussions (TESSD) negotiations at WTO (plurilateral). | N – Not currently an active negotiating item for WTO as a whole but mutually supportive with WTO objectives; aim of Doha Declaration, Para. 31(iii). |
| <b>Liberalisation of environmental services</b> | Removal of regulatory barriers preventing environmental services providers from operating in UK and facilitating UK environmental  | Cross-sectoral   | N  | Hard – If mandatory.                             | Y  | Y   | Y – Can take place through FTAs; also potentially TESSD at WTO (plurilateral).   | N – Not currently an active negotiation for WTO as a whole, but mutually supportive with WTO objectives; aim of Doha                                 |

| Trade policy option                  | Description  | Sectoral scope  | Addresses leakage? | Hard/soft  | Could this policy be implemented autonomously (i.e. without an FTA or sectoral agreement)? | Can the UK work with other countries on developing this policy? | Could this policy be implemented via an FTA or sectoral agreement (even if it is not necessary)?  | Are there relevant international agreements or standards (existing or in development)? |
|--------------------------------------|--|---|--------------------|--|--|---|---|--|
|                                      | services in other countries.   |   |                    |  |  |   |   | Declaration, Para. 31(iii).  |
| <b>Labelling</b>                     | Can be separated into disclosure labels (e.g. energy efficiency) or standards-based (e.g. FSC).  | Manufactured goods (e.g. white goods) and agri-food/forestry. | N                  | Hard – If mandatory.   | Y  | Y   | Y – Can take place through FTAs (e.g. the ACCTS agreement negotiations on environmental labelling).   | Y – Negotiations on eco-labelling under WTO Doha Declaration, Para. 32(iii).           |
| <b>Due diligence requirements</b>    | Requiring corporations to report on their GHG emissions or other climate-related issues, e.g. contribution to deforestation of tropical commodities. This becomes a trade measure if the UK imposes checks on imported products. | Cross-sectoral  | N                  | Generally soft, but can be hard if compliance criteria are defined precisely and monitored carefully, and compliance is required for import. | Y  | Y   | Y – Sustainability impact assessment in FTAs and Corporate Social Responsibility obligations in FTAs; FACT dialogue (multi-stakeholder consultation). | N  |
| <b>Export finance/export support</b> | The UK has agreed to phase out export finance for fossil fuel projects but could increase its efforts to align export finance  | Fossil fuel projects and low carbon development.              | N                  | N/A  | Y  | Y   | Y – Commitments to phase out export finance for fossil fuel industries (e.g. UK-New Zealand FTA Article 22.8).  | N  |

| Trade policy option                                   | Description   | Sectoral scope   | Addresses leakage?                                       | Hard/soft | Could this policy be implemented autonomously (i.e. without an FTA or sectoral agreement)? | Can the UK work with other countries on developing this policy? | Could this policy be implemented via an FTA or sectoral agreement (even if it is not necessary)?  | Are there relevant international agreements or standards (existing or in development)?  |
|---|---|--|--|-----------|--|---|---|---|
|   | with its net zero target.   |  |  |           |  |   |   |   |
| <b>UK subsidies (unilateral)</b>                      |   |  |  |           |  |   |   |   |
| <b>Green subsidies supporting emissions reduction</b> | These are not trade policy tools per se, but included as they are monitored by WTO members and can be subject to challenge through WTO dispute settlement.  | Cross-sectoral. May target renewable energy, manufactured goods, agri-food and forestry.               | Y – In that it supports markets for low carbon products. | N/A       | Y  | Y   | Y – Green subsidy 'carve outs' can be included in FTAs.   | N   |
| <b>Fossil fuel subsidies</b>                          | These are not trade policy tools per se, but included as their reduction is considered a 'win-win' for trade liberalisation and climate protection, and subject to commitments from some WTO members and in FTAs. | Fossil fuel industries (production subsidies). Also consumers of fossil fuels (consumption subsidies). | N  | N/A       | Y  | Y   | Y – Commitments to eliminate harmful fossil fuel subsidies (e.g. UK-New Zealand FTA Article 22.8). Friends of Fossil Fuel Subsidies Reform and WTO Ministerial statement on Fossil Fuel Subsidies (plurilateral). | Y – Glasgow Climate Pact agreement to accelerate “efforts towards the phase-down of unabated coal power and inefficient fossil fuel subsidies”. |

| Trade policy option                                       | Description  | Sectoral scope | Addresses leakage?   | Hard/soft  | Could this policy be implemented autonomously (i.e. without an FTA or sectoral agreement)? | Can the UK work with other countries on developing this policy? | Could this policy be implemented via an FTA or sectoral agreement (even if it is not necessary)? | Are there relevant international agreements or standards (existing or in development)? |
|---|--|----------------|--|--|--|---|--|--|
| <i>Cooperative approach (bi-, pluri- or multilateral)</i> |  |                |  |  |  |   |  |  |
| <b>FTA non-regression/non-derogation requirements</b>     | Countries agree that they will not fail to enforce environmental laws and regulation to benefit trade and investment. Can apply to climate targets, e.g. in the EU-UK TCA, both are required to uphold their existing 'effective' systems of carbon pricing and their interim emissions reduction targets. | Cross-sectoral | Y – As a broad/blunt tool, but only if agreements on net-zero targets, emissions reduction and/or carbon pricing are included in an FTA. | Largely soft, when very high-level, cross cutting commitment. Can be made 'harder' by linking to more specific climate commitments and sanctions for non-compliance. | N  | Y   | Y  | N  |
| <b>FTA re-commitment to Paris Agreement</b>               | Countries include FTA clauses setting out their commitment to the Paris Agreement. Can also include commitments to limit warming to 1.5C (which the Paris Agreement states countries should 'pursue efforts' to  | N/A            | N  | Soft, unless non-compliance can lead to treaty suspension, as the EU has pledged (through making compliance an 'essential element' of FTAs)                          | N  | Y   | Y  | Y – Paris Agreement.   |

| Trade policy option   | Description  | Sectoral scope | Addresses leakage? | Hard/soft | Could this policy be implemented autonomously (i.e. without an FTA or sectoral agreement)? | Can the UK work with other countries on developing this policy? | Could this policy be implemented via an FTA or sectoral agreement (even if it is not necessary)? | Are there relevant international agreements or standards (existing or in development)? |
|---|--|----------------|--------------------|-----------|--|---|--|--|
|   | achieve), net-zero targets or interim emissions reduction targets.   |                |                    |           |  |   |  |  |
| <b>FTA cooperation on climate performance standards and labelling</b> | Regulatory cooperation on reducing Technical Barriers to Trade (e.g. energy efficiency standards) and harmonising labels.  | Cross-sectoral | N                  | N/A       | N  | Y   | Y  | Y – through eg ISO and Global Ecolabelling Network.                                    |
| <b>Green investment facilitation</b>                                  | Countries agree to create a business-friendly green investment environment through, for example, exchange of information, streamlining procedures for green investment, capacity-building. | N/A            | N                  | N/A       | Y  | Y – Often takes place through FTAs.                             | Y  | N  |



| Trade policy option  | Description  | Sectoral scope   | Addresses leakage? | Hard/soft | Could this policy be implemented autonomously (i.e. without an FTA or sectoral agreement)?                                       | Can the UK work with other countries on developing this policy?   | Could this policy be implemented via an FTA or sectoral agreement (even if it is not necessary)?  | Are there relevant international agreements or standards (existing or in development)?  |
|--|--|--|--------------------|-----------|--|---|---|---|
| <b>Green industrial policies cooperation (climate alliances)</b> | Countries agree to cooperate on green industrial policies (procurement, subsidies, local content requirements, investment, technology transfer, IP).   | N/A  | N                  | Soft      | N  | Y – Germany's G7 climate club proposal (2021) contains elements of this broader cooperative agenda; also TESSD at WTO (plurilateral). | Y   | N   |
| <b>Climate clubs</b>   | Countries who price carbon (or have equivalent domestic climate regulation) agree to impose import duties on non-participating countries but not on each other. If enough countries do this, it increases the incentive for others to price emissions/join the club. | Nordhaus (economist, generator of idea) proposed that the import tariff would apply across all products/sectors. It is also possible to adopt a narrow sectoral approach (as the EU and US appear to have proposed for steel and aluminium in the Arrangement on Global Steel and Aluminium Excess Capacity and Carbon Intensity). | Y                  | Hard      | Y – It seems very likely that climate clubs would take the form of sectoral agreements, but the concept remains loosely defined. | Y   | Y – The UK could embed a carbon club into an FTA by writing in provisions agreeing on equivalent carbon pricing/climate regulation and waiving fees. This has not been done, and the EU has not considered commitment to effective carbon pricing in the TCA as sufficient to waive | Y – Paris Agreement Article 6(2) on internationally-transferred mitigation outcomes (ETS linkage) and Article 6(4) establishing a multilateral mechanism for emissions mitigation (global carbon market). |

| Trade policy option   | Description  | Sectoral scope             | Addresses leakage? | Hard/soft | Could this policy be implemented autonomously (i.e. without an FTA or sectoral agreement)? | Can the UK work with other countries on developing this policy? | Could this policy be implemented via an FTA or sectoral agreement (even if it is not necessary)? | Are there relevant international agreements or standards (existing or in development)? |
|---|--|----------------------------|--------------------|-----------|--|---|--|--|
|   |  |                            |                    |           |  |   | requirements on a UK-wide basis.   |  |
| <b>Global Methane Pledge</b>                                | Countries commit to reducing global methane emissions by at least 30% from 2020 levels by 2030 and using best available inventory methodologies to quantify methane emissions. Not a trade policy per se, but underpins domestic efforts to reduce methane emissions, which interact with potential BCA or performance standards-based trade policy options. | Fossil fuels, agriculture. | N                  | Soft      | N  | Y   | Y  | Y – Paris Agreement.   |
| <b>Glasgow Leaders' Declaration on Forests and Land Use</b> | Commitment to halt and reverse forest loss and deforestation by 2030. Not a trade policy per se, but among listed actions are commitments to mobilise international  | Agriculture and forestry.  | N                  | Soft      | N  | Y   | Y  | Y – Paris Agreement.   |

| Trade policy option | Description  | Sectoral scope | Addresses leakage? | Hard/soft | Could this policy be implemented autonomously (i.e. without an FTA or sectoral agreement)? | Can the UK work with other countries on developing this policy? | Could this policy be implemented via an FTA or sectoral agreement (even if it is not necessary)? | Are there relevant international agreements or standards (existing or in development)? |
|---------------------|--|----------------|--------------------|-----------|--|---|--|--|
|                     | finance and secure deforestation-free supply chains, both of which have trade and investment implications. |                |                    |           |  |   |  |  |

## Section C: The trade policy landscape relevant to emissions reduction: the UK and beyond

### 1. Introduction

It is a dynamic time for trade policy relating to climate change. Major UK trade partners are qualifying their pursuit of open trade policy in new and unprecedented ways, with climate emerging as a core priority. The EU has described its approach to trade as ‘open, sustainable and assertive’<sup>6</sup>; the US has called for ‘friend-shoring’, stating that trade policy must increase economic integration between allies and support decarbonisation.<sup>7</sup> Yet other countries have expressed concern about their exclusion from such alliances, and the turn toward new climate-related trade measures, arguing that they are discriminatory or even create perverse impacts on global decarbonisation.<sup>8</sup>

The UK’s trade policy decisions in this area are inevitably informed by the actions of others. At the same time, on the domestic level, EU-exit has created a dynamic period of policymaking, giving the UK large room for manoeuvre in establishing its trade and climate strategy.

In this section, we consider the current policy landscape that informs any future trade policies the UK might impose to pursue a level playing field between its domestic emission reduction and imported products. This is a broad, but by no means comprehensive, exercise. With respect to climate change mitigation, it is not self-evident to draw a line between those areas which do, and do not, implicate trade policy.<sup>9</sup> We are not exhaustive in analysing international policy developments, nor in addressing all elements of the individual areas we select.

In selecting these areas, we have aimed to address the following questions:

- What are some of the key policy developments on the multilateral, plurilateral and domestic level that inform the UK’s approach to emissions reduction through trade policy?
- What are the key controversies that have resulted from these developments, from the perspective of both governments and stakeholders?
- What are the prospects for international cooperation?

In its topical coverage, this analysis follows the taxonomy table in Section B, but the organisation is changed to improve narrative flow. We examine:

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<sup>6</sup> European Commission, [Commission sets course for an open, sustainable and assertive EU trade policy](#) (18.02.21).

<sup>7</sup> Atlantic Council, [US Treasury Secretary Janet Yellen on the next steps for Russia sanctions and 'friend-shoring' supply chains](#) (13.04.22).

<sup>8</sup> See, for example, V Mohan, [BASIC nations oppose EU's plan to impose a 'carbon border tax'](#) (Times of India, 10.04.21).

<sup>9</sup> For a fuller analysis of the interactions between UK net-zero targets and international trade rules, see E Lydgate and C Anthony, [Coordinating UK trade and climate policy ambitions: A legislative and policy analysis](#) (2021) 22(4) *Environmental Law Review* 280.

- a) General cross-cutting areas of climate change-related trade policy - WTO trade and environment negotiations and FTAs;
- b) Oil, gas and manufactured products - autonomous, plurilateral and international approaches to the development of embodied emissions metrics and measures for trade policy;
- c) Agri-food and forestry - autonomous, plurilateral and international efforts to use trade policy to address deforestation (in particular its contribution to climate change); and
- d) Subsidies - the UK's domestic approach to both green and fossil fuel subsidies, and the potential to build international consensus on removing subsidies that are harmful for climate objectives.

## 2. Overview

### A. Multilateral negotiations

The issue of climate change does not explicitly feature in the WTO agreements. However, trade and environment more generally have long featured. Since the Doha Development Agenda, launched in November 2001, international negotiations on trade and the environment at the WTO, supported by the Committee on Trade and Environment (CET), have focused on three main themes<sup>10</sup>:

- a) the relationship between WTO rules and multilateral environmental agreements (MEAs);
- b) collaboration between the WTO and MEA secretariats; and
- c) the elimination of tariffs and non-tariff barriers on environmental goods and services.

The first two themes address the relationship between specific trade obligations in the MEAs and WTO rules to ensure that carbon emission reduction initiatives, among other provisions, are not undermined.<sup>11</sup> The elimination of trade barriers on environmental goods and services aims to create a mutually beneficial situation for trade, the environment and development by lowering the cost and usage of (high quality) environmental goods and services,<sup>12</sup> which can reduce carbon emissions.

Generally, environmental goods and services are understood to be products manufactured or services rendered for the main purpose of preventing or minimising pollution, or alternatively activities carried out to measure and monitor environmental degradation and protection. There is, however, a lack of a collectively agreed standardised list of environmental goods despite, for example, negotiations towards an Environmental Goods Agreement (EGA) launched in July 2014.<sup>13</sup> Instead, some countries have pursued unilateral or bilateral strategies to liberalise green goods and services, and promote green investment. For instance, the UK's Global Tariff (i.e. the UK's external MFN tariff schedule) liberalised or made targeted tariff reductions on approximately 100 green products, such as wind turbine

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<sup>10</sup> WTO, [Negotiations on trade and the environment](#).

<sup>11</sup> WTO, [The Doha mandate on multilateral environmental agreements \(MEAs\)](#).

<sup>12</sup> WTO, [Eliminating trade barriers on environmental goods and services](#).

<sup>13</sup> WTO, [Environmental Goods Agreement \(EGA\)](#).

parts.<sup>14</sup> In the UK-New Zealand Free Trade Agreement, an environment chapter on pursuing cooperation between the parties in tackling climate change and reducing carbon emissions contains a list of almost 300 products with environmentally friendly characteristics, the most comprehensive list in an FTA to date.<sup>15</sup>

As the UK doesn't have a government-led climate or environment strategy for its trade policy, the UK Board of Trade Green Trade Report is particularly significant in setting out core recommendations. The importance of liberalising environmental goods and services is a major emphasis of the Report, which recognises that this supports decarbonisation by bringing down the costs of green goods and technologies.<sup>16</sup> This is therefore an area which holds the promise of supporting more affordable emissions reduction while also facilitating greater liberalisation: a 'win-win' for trade and climate, although far from comprehensive strategy in itself.

Presently, the Trade and Environmental Sustainability Structured Discussions (TESSD), launched in November 2020, stands as the leading forum for international discussion and cooperation on designing coherent trade policies that acknowledge environmental impacts and climate change. The UK is a member of the TESSD, a plurilateral initiative (not all WTO Members participate), which complements the existing work of the CTE and seeks to promote transparency and information sharing, as well as providing technical assistance to least-developed countries to ensure, among other things, that environmental measures are not misused to discriminate against their exports.

## B. Free Trade Agreements

The UK is negotiating or re-negotiating over 40 free trade agreements (FTAs)<sup>17</sup> and has a target for 80% of UK trade to be covered by FTAs by the end of 2022.<sup>18</sup> FTAs, which deepen both trade and regulatory cooperation among participating countries, can facilitate climate change adaptation and mitigation as well as environmental protection through removing barriers to trade on climate-friendly goods, services and technologies, reinforcing commitment to the Paris Agreement, coordinating approaches to carbon pricing, committing to phasing out or limiting removing fossil fuel subsidies and supporting renewable energy subsidies.<sup>19</sup>

One potential home for discussion about harmonising trade and climate regulation, such as embodied emissions methodologies, labelling and carbon pricing, is through FTAs, but few have fully exploited these opportunities to date.

Starting with the EU-Japan Economic Partnership Agreement in 2018, some FTAs have reinforced countries' commitment to the Paris Agreement. This approach is evident, for example, in the recently concluded FTA between the UK and Australia, which requires both

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<sup>14</sup> DIT, [The UK Global Tariff](#) (Feb 2020).

<sup>15</sup> UK-New Zealand FTA, [Annex 22a: Environmental Goods List](#).

<sup>16</sup> DIT, [Board of Trade report: green trade](#) (July 2021).

<sup>17</sup> DIT, [UK trade agreements with non-EU countries](#) (May 2022).

<sup>18</sup> DIT, [Made in the UK, sold to the world](#) (Nov 2021).

<sup>19</sup> We have undertaken a more comprehensive analysis of how UK FTAs reflect climate objectives in past work: E Lydgate and C Anthony, [Can the UK Government be 'world-leading' in both trade and climate policy?](#) (UK Trade Policy Observatory 2020).

to ‘affirm their commitment to address climate change’ and to the Paris Agreement, and outlines areas for cooperation, such as development of low emissions technology and emissions measurement, reporting and verification.<sup>20</sup>

This shared commitment provides assurance that the trade partner is also taking domestic measures to decarbonise its domestic economy and thus impose some costs and restrictions on domestic emissions, even if they are not precisely equivalent.

Environment FTA chapters also contain commitments not to derogate from, or neglect to enforce, existing environmental laws in a way that affects trade and investment. This would include any domestic legislation on emissions reduction. In the UK’s recent FTAs with Australia and New Zealand, this non-regression obligation is subject to the agreement’s dispute settlement mechanism.

The UK-EU TCA adopts arguably the most binding commitments on addressing climate change in an FTA, outside of EU deep integration agreements, such as Association Agreements, which require trade partners to adopt EU environmental legislation more fully. The TCA reaffirms both sides’ net-zero targets, a commitment which is covered under the standard dispute settlement mechanism, such that regression can be subject to sanctions under certain conditions.

The TCA also addresses carbon pricing. It requires that both sides maintain ‘effective’ carbon pricing (again, subject to sanctions for non-compliance), clarifies that flights between the UK and EU will be subject to ETS pricing, and obliges the EU and UK to ‘give serious consideration to linking their respective carbon pricing systems in a way that preserves the integrity of these systems and provides for the possibility to increase their effectiveness.’

These commitments represent an interesting precedent for post-net-zero FTAs. They raise the question of whether the FTA itself might form the basis for a carbon club, or UK exemption from CBAM, discussed further below. However, the Commission’s July 2021 proposal, outlined below, does not suggest that the TCA is sufficient to form a basis for exemption; instead, the UK and EU would need to formally ‘link’ their Emissions Trading Schemes (see Section D for more analysis).

### C. Other areas of trade policy

While multilateral WTO negotiations and FTAs constitute the most easily identifiable institutional structures for trade policy impacting upon climate, it can of course take many other forms, as we attempt to highlight in our taxonomy. Notably, individual countries’ regulation shapes global trade and climate policies, particularly if they have a large market power. Thus the EU’s autonomous decisions on how to address agricultural deforestation-related emissions, and its CBAM, have global reverberations, including for the UK.

Countries can also undertake trade policy cooperation through plurilateral agreements, which can be formed within or outside of the WTO (the TESSD is one such initiative). Plurilateral agreements may be open or closed. In the former case, benefits are extended to

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<sup>20</sup> UK-Australia Free Trade Agreement, Art 22(5).

all WTO Members, even those that do not participate; in the latter, only participating members benefit. We will return to plurilateral agreements in the context of climate clubs.

Within some constraints prescribed by the WTO, trade policy can, and may increasingly, take the form of agreements to cooperate on regulation for particular sectors of the economy, such as steel and aluminium.

Finally, international agreements and standards form an important context for trade policy. Concern about the need to extend trade policy levers to address emissions globally is linked to asymmetrical ambition: other countries not imposing the same regulatory costs and economic reforms at the same pace. Climate-related trade restrictions can be minimised through creating international consensus in the form of standards and agreements.

### 3. Embodied emissions: manufactured products, oil and gas

Here we consider the current status of trade policy proposals to address embodied emissions *autonomously* (Border Carbon Adjustments), as well as the prospects for using due diligence and public procurement as trade policy levers to address such emissions. We then turn to the potential for, and pitfalls of *plurilateral* cooperation (climate clubs), and finally the role and status of *international standards* on embodied emissions, including labels.

#### A. Autonomous approaches

##### I. Border Carbon Adjustment

Table C.1 Autonomous approaches to Border Carbon Adjustment

|                | Adoption/consideration of Border Carbon Adjustment       |
|----------------|--|
| European Union | planned for 2023   |
| United States  | Peters-Coons failed legislative proposal; California BCA |
| United Kingdom | in discussion  |
| Canada         | in discussion  |

##### (i) EU Carbon Border Adjustment Mechanism (CBAM)

A range of countries have domestic carbon pricing or Emissions Trading Schemes (ETS) (sometimes referred to as cap-and-trade)<sup>21</sup>, however only a subset of these are actively considering extending these domestic charges to imported products. Perhaps not surprisingly, the most advanced proposal to do so comes from the region that, outside the UK, imposes by far the highest explicit carbon prices on its domestic industries<sup>22</sup> - the EU.

#### Justification

<sup>21</sup> OECD, [Effective carbon rates 2021: pricing carbon emissions through taxes and emissions trading](#) (May 2021).

<sup>22</sup> The EU and UK ETS prices, at the time of writing, are both around £80 per tonne; the price in US states which apply carbon prices averages around USD \$25.



Pursuant to its Green Deal, the EU has committed to introduce a so-called Carbon Border Adjustment Mechanism (CBAM) by 2023. At the time of writing, the ‘general approach’ of the proposal has been endorsed by the European Council<sup>23</sup>, but is yet to be agreed with European Parliament, who have suggested more environmental ambition in several respects: larger scope of products covered, inclusion of indirect emissions from the outset, shorter phase-in period and faster phase-out of free ETS permits.<sup>24</sup> Thus the design will be subject to considerable debate, and should be seen as provisional. It is highly likely, but not inevitable, that CBAM will be approved.

The CBAM, as envisaged by the Commission, will impose EU Emissions Trading Scheme (EU ETS) prices onto imported products. The stated objective of CBAM, as set out in the Green Deal and reiterated in the Commission’s proposal of July 2021, is ‘to reduce the risk of carbon leakage’.<sup>25</sup> In so doing, the Commission has strategically positioned CBAM as a climate change mitigation measure, rather than an effort to protect EU producers from foreign competition. The proposal focuses on the *risk* of leakage as EU ETS prices continue to increase; an evidence base for assessing current leakage, or detailed future leakage projections, are not provided as part of its proposal.<sup>26</sup>

The EU’s CBAM proposal is a significant development in national efforts to require embodied emissions assessment (which the Commission describes as embedded emissions). Border Carbon Adjustment (BCA) is an extension of domestic carbon pricing, however, unlike an ETS, which is a direct charge on installations (producer regulation), BCA assesses emissions embedded within a particular shipment of goods (product regulation). While the EU has long experience in calculating emissions on an installation-level due to the ETS, requiring that exporters assess embedded emissions within products in emissions intensive trade exposed (EITE) industries is novel.

Inevitably, an EU CBAM would build global capacity for embedded emissions assessment among exporters to the EU, contributing to the normalisation of lifecycle and embedded emissions analysis as regulatory requirement for trade. From a climate policy perspective, this is an important benefit or rationale in and of itself, which may also facilitate other countries’ introduction of BCAs.

## Scope

After a transition period from 2023-25, in which only reporting will be required, the Commission’s proposal extends prices equivalent to those charged under the EU’s Emissions Trading Scheme to direct emissions from imported products in five sectors: electricity, aluminium, cement, steel and fertilisers. While the number of products covered by the initial proposal is relatively small, the Commission has left open the possibility that the scope of covered sectors will increase in the future. We address the EU’s rationale for the selection of sectors, and its relevance for the UK, in Section D.

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<sup>23</sup> Council of the EU, [Council agrees on the Carbon Border Adjustment Mechanism \(CBAM\)](#) (15.03.22).

<sup>24</sup> As of the [Proposal of the Committee on the Environment, Public Health and Food Safety](#) (21.12.21).

<sup>25</sup> European Commission, [Proposal for a Regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism](#) COM(2021) 564 final.

<sup>26</sup> See European Commission’s [Impact Assessment Report](#) SWD(2021) 643, pp6-8.

During the transition period, the Commission limits CBAM coverage to direct emissions (scope 1), defined as those which occur during the production process. It excludes indirect emissions (scope 2), those generated in the production of electricity used in the manufacturing process. However, it acknowledges that financial measures to compensate for indirect emissions costs are part of its current toolkit to prevent leakage. Therefore, to mirror the ETS, coverage will expand to include indirect emissions when the initial transition period ends.

### **Administration**

Likely due to concerns about ensuring that the CBAM is non-discriminatory between EU and imported products from a WTO perspective, the Commission has been careful to ensure that the CBAM mirrors the ETS in its price and structure. The CBAM takes the form of a shadow ETS scheme. While CBAM permits do not affect ETS prices, they are pegged to the ETS price weekly; importers must purchase these permits and surrender them to cover the emissions embodied in their imports.

While EU border authorities record the products imported by each importer as they occur, they do not have to assess or administer the payment of the emission charge. The latter is paid once a year by the importers in arrears. It is paid by turning in the appropriate number of emissions certificates which importers have to purchase (without limit) at an officially declared price. The price will be updated every week to equal the prevailing price of carbon credits in the ETS in the preceding week. Thus, imports pay, but do not determine, the internal price for emissions. Importers will be obliged, at the end of each quarter, to hold a stock of certificates equal to at least 80% of the value they will have to turn in to cover the imports they have made so far in the reporting year. The required amounts will be calculated according to the benchmark values, but if importers end the year with excess amounts, the authorities will buy them back at cost (up to a fairly generous limit). To a first approximation this arrangement ensures that importers and domestic producers face the same price for emissions, a necessary condition for both WTO-compatibility and economic efficiency.

There is no generally agreed definition of embedded emissions. The current CBAM proposal<sup>27</sup> defines them as emissions which occur in production but are not physically incorporated in goods. The methodology for calculating embedded emissions is set out in Annex III of the proposal. If actual emissions are unknown, the Commission does allow exporters to utilise default values based on average emissions intensities of the exporting countries, and is developing methodologies to determine these average emissions intensities. If no reliable data is available, default values are based on average emissions intensity of the 10% worst performing EU installations, incentivising firms to calculate their actual emissions, despite the additional administrative burden this creates.

Citing the impossibility of following the flow of electrons, the Commission proposes a different methodology for electricity, in which embedded emissions are assessed by default values for a non-EU country, group of countries or region; if those are not available, EU

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<sup>27</sup> These discussions continue to evolve. This report reflects their status as of July 2021, the date of the Commission's proposal.

default values may be used. However, importers may still calculate actual embedded emissions, subject to some conditions to establish that they can do so accurately.

Outside the EU, only countries that participate in the EU ETS (EEA countries) or have carbon pricing schemes that are formally linked (Switzerland) are exempted altogether. All other exporters of the covered products will be required to:

- Register to become certified exporters under new CBAM requirements;
- Verify their emissions using methodologies proposed by the Commission;
- Calculate the reduction in price based on the amount that they have paid domestically; and
- Acquire third party verification.

This implies a significant additional regulatory burden and compliance cost, even if domestic carbon pricing is close to that of the EU, as currently the case in the UK.

The draft Regulation's explanatory text also states that the EU will 'explore possibilities' for concluding agreements [with third countries] to 'take into account their carbon pricing mechanism', which 'could be considered as an alternative to the application of CBAM in case they ensure a higher degree of effectiveness and ambition to achieve decarbonisation of a sector'.<sup>28</sup> This leaves open the possibility that the UK might be able to negotiate bilaterally to avoid CBAM charges, but little detail is provided about how such an arrangement might be concluded.

#### (ii) The US FAIR Transition and Competition Act

The State of California already imposes border carbon adjustment on electricity imports from US states outside its emissions trading scheme.<sup>29</sup> The idea of introducing BCA more broadly enjoys some bipartisan support in the US.<sup>30</sup> The Biden Administration has expressed interest in BCA, an idea introduced initially during the election campaign.<sup>31</sup> Two Congresspeople of the Democratic party of the US also developed legislation to apply BCA in the form of the FAIR Transition and Competition Act (2021).<sup>32</sup> While it was not a Democratic party-wide or Administration proposal, and was not passed by US Congress (and thus not equivalent in standing or likelihood to advance as the EU proposal), it is significant that it was tabled for discussion. The Peters-Coons legislative proposal highlights the wide range of potential regulatory design choices for BCA.

One significant difference between the proposed legislation and that of the EU is that the US does not have a national carbon price. Instead, the US proposal's pricing structure is based on the notion that regulatory requirements for emissions reduction impose a cost on US producers. It stipulates that the US Government will calculate average regulatory costs of compliance with US climate regulation, including the Clean Air Act and regional carbon pricing; this will be multiplied by production greenhouse gas emissions of a product (or

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<sup>28</sup> European Commission, [Proposal for a Regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism](#) COM(2021) 564 final, pp2-3.

<sup>29</sup> LPDD, [California ETS Border Carbon Adjustment](#).

<sup>30</sup> C Hendersen, [A carbon border adjustment is on the negotiating table](#) (republicEn 03.05.22).

<sup>31</sup> Joe Biden, [The Biden Plan for a clean energy revolution and environmental justice](#).

<sup>32</sup> [Fair, Affordable, Innovative, and Resilient Transition and Competition Act 2021](#).

embodied emissions). Significantly, the proposal did not include a methodology for calculating these, stating simply that reliable methodologies would be used.

There is a heterogeneity of emissions regulation in the US, with only Northeast States and California pricing carbon through cap-and-trade systems.<sup>33</sup> Reducing this regulatory burden to an average seems open to challenge in the WTO, where exporters will likely be able to point to instances of asymmetric pricing where importing countries are paying more. Simply put, applying carbon prices to imports where there is no carbon price domestically is a very difficult position to defend as non-discriminatory.

Nonetheless, the Biden Administration has expressed an aspiration to use trade policy in order to ‘keep out dirty [high GHG emitting] products.’<sup>34</sup> Given its lack of national carbon price, the US clearly has a strong interest in the development of broadly recognised methodologies for assessing embedded carbon. This can act as a basis for recognising the equivalence between performance standards (implicit) and pricing-based (explicit) approaches to climate regulation.

A significant difference between the two proposals is the structure of exemptions. The Commission’s July 2021 proposal does not exempt any country categorically except if it has a linked ETS scheme. In contrast, the US proposal exempts some lower income nations, and any country which has greenhouse gas emissions reduction limits that are at least as ambitious as those in the US. In a clear protest against the EU CBAM, it refuses exemption to countries that apply Border Carbon Adjustments. Thus the US proposal has a more flexible approach to exemption than that of the EU, making it arguably more conducive to plurilateral cooperation or ‘climate clubs’, prospects for which we consider in more detail below.

Finally, the product scope differs somewhat from that of the EU. It covers fuels, defined as ‘natural gas, petroleum, coal, or any other product derived from natural gas, petroleum, or coal, that is used or may be used so as to emit greenhouse gases to the atmosphere.’ It also covers steel, aluminium, cement or iron, or products containing these (not fertilisers), and includes more types of emissions (methane, hydrofluorocarbons and sulfur hexafluoride as well as carbon dioxide, nitrous oxide and perfluorocarbons)<sup>35</sup>. This broader scope introduces additional methodological challenges (ref. Section D).

### (iii) Other countries

While BCA policy is most developed in the EU and US, Canada and the UK are considering their introduction, though not much information is available in the public domain.

#### **Canada**

Carbon pricing has been in operation in Canada since 2019: provinces and territories implement their own carbon pricing systems and must meet national criteria known as the

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<sup>33</sup> Centre for Climate and Energy Solutions, [US State Carbon Pricing Policies](#).

<sup>34</sup> See, for example, The White House, [Biden-Harris Administration Advances Cleaner Industrial Sector to Reduce Emissions and Reinvigorate American Manufacturing](#) (15.02.22).

<sup>35</sup> These greenhouse gasses are defined with reference to paragraph 3 of Section 901 of the [Energy Independence and Security Act of 2007](#) (42 U.S.C. 17321).

federal benchmark.<sup>36</sup> The Canadian Department of Finance launched a first phase of consultation on carbon border adjustment for Canada in August 2021.<sup>37</sup>

## United Kingdom

On 4 April 2022, the Environmental Audit Committee published a report on advocating the introduction of a UK CBAM to commence during the 2020s<sup>38</sup>; a Government consultation on carbon leakage mitigation, including the possible introduction of a UK CBAM, was announced on 17 May 2022.<sup>39</sup>

### (iv) International responses to CBAM

Many countries have been vocal in their opposition to BCA in general and the EU's proposal in particular. This is not helped by the fact that CBAM revenues are earmarked for the main EU budget, rather than directed toward international climate finance or domestic climate objectives. Also, there is no explicit provision for differentiated treatment of any developing countries.

More fundamentally, the idea of BCA has been subject to strenuous objection from some countries on the grounds that it contravenes the approach of the Paris Agreement, under which Nationally Determined Contributions focus on domestic emissions, rather than imposing domestic requirements on other countries. The BASIC grouping (Brazil, South Africa, India and China) has published a statement opposing the EU's CBAM proposal<sup>40</sup>, highlighting that extending EU carbon pricing to developing countries goes against the Paris Agreement's principle of Common but Differentiated Responsibilities and Respective Capacities. The BASIC countries also characterise CBAM as a discriminatory measure aimed at protecting EU industry, rather than an environmental measure.

Some have raised concerns that the proposal will adversely impact decarbonisation progress in developing countries. For example, in evidence to the Environmental Audit Committee, Dr Sanna Markkanen from the Cambridge Institute for Sustainability Leadership stated that CBAM could adversely affect low and middle income countries' low carbon production, simply because they would not be able to overcome the administrative barriers to export.<sup>41</sup> E3G echoes this concern about the lack of developing country access to clean energy technologies, which means that a price signal will not be effective in stimulating innovation.<sup>42</sup> The issue of CBAMs is intrinsically linked to issues of climate diplomacy, and developing countries' criticism that developed countries have failed to deliver their commitment to providing climate finance to support them in the low carbon transition.

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<sup>36</sup> S de Clara et al, [Emissions trading worldwide: status report 2022](#) (International Carbon Action Partnership 2022), pp94-96.

<sup>37</sup> Department of Finance, [Government launches consultations on border carbon adjustments](#) (Aug 2021).

<sup>38</sup> Environmental Audit Committee, [Greening imports: a UK carbon border approach](#) (Mar 2022).

<sup>39</sup> L Frazer, [Update on carbon leakage mitigations](#) (16.05.22).

<sup>40</sup> V Mohan, [BASIC nations oppose EU's plan to impose a 'carbon border tax'](#) (Times of India, 10.04.21).

<sup>41</sup> S Markkanen, [Oral evidence: carbon border adjustment mechanism](#) (Environmental Audit Committee, 24.011.21).

<sup>42</sup> B Tsang et al, [A storm in a teacup](#) (E3G 2021).

Further concerns about CBAM are evident when reviewing international responses to the EU's presentation of the CBAM proposal in the WTO Committee on Trade and Environment in March 2021.<sup>43</sup> The EU faced criticism from a number of trade partners. India, Russia, Paraguay, Canada and the US questioned whether the CBAM was WTO-compliant and urged the EU to avoid unnecessary barriers to trade, and to continue dialogue and transparency in implementing CBAM.

A recent study from the University of Boston highlighted worse impacts on the developing world: 'At its broadest implementation, the CBAM could result in an annual welfare gain in developed countries of \$141 billion [£108 bn], while developing countries see an annual welfare loss of \$106 billion [£81 bn], compared to a baseline scenario'.<sup>44</sup> In contrast, a report from E3G emphasises that the initial proposed sectoral coverage is narrow, and thus the net impact on exporters will be lessened if factoring in higher market prices and 'should barely reach €1.0bn [£850 million] in 2026 and €1.6bn [£1.3bn] in 2035 across imports from six major trading partners'.<sup>45</sup> IEEP and other stakeholders offer an analysis of particular impacts on developing country industries, to which we return in Section D.<sup>46</sup>

The conflict with Russia has also impacted upon the potential effectiveness and strategic importance of CBAM. As set out by Sam Lowe of Flint Global<sup>47</sup>, both Russia and Ukraine are highly exposed to CBAM charges, but blanket sanctions on Russia make CBAM less effective, and applying additional charges to exports from Ukraine is undesirable. In the context of its FTA with Ukraine, the UK has recently agreed to waive all tariffs on Ukrainian exports.<sup>48</sup> This does not preclude the UK applying a BCA to Ukraine, which should indeed be applied evenly to all countries in order to fulfil BCA's environmental objectives in a consistent, non-discriminatory manner, but it makes the option less attractive.

#### (v) EU stakeholder views

Before introducing the CBAM, the European Commission undertook stakeholder consultation in which it solicited feedback on four policy options for addressing leakage through pricing carbon embodied in exported products. These included: a tax on imports at the EU border on a selection of products whose production is in sectors at risk of carbon leakage (at a fixed rate not directly related to a product's embodied emissions); an extension of the EU ETS; the obligation to purchase allowances outside the ETS (the option that was eventually selected by the Commission); and a consumption carbon tax. Public responses in aggregate neither strongly supported nor strongly opposed the Commission's policy design choice. Industry associations very slightly favoured a border tax, rather than a shadow ETS scheme. They did, however, prefer a narrower sectoral approach, in which only sectors most at risk of leakage were subject to CBAM (the Commission's proposed

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<sup>43</sup> WTO Committee on Trade and Environment, [Report of the meeting held on 16 and 20 November 2020](#) (WT/CTE/M/70).

<sup>44</sup> Taskforce on Climate, Development and the International Monetary Fund, [The global impact of a carbon border adjustment mechanism: a quantitative assessment](#) (Mar 2022).

<sup>45</sup> B Tsang et al, [A storm in a teacup](#) (E3G 2021).

<sup>46</sup> IEEP et al, [What can Least Developed Countries and other climate vulnerable countries expect from the EU Carbon Border Adjustment Mechanism](#) (IEEP 2021).

<sup>47</sup> S Lowe, [Does the EU need CBAM anymore?](#) (Most Favoured Nation, 08.05.22).

<sup>48</sup> DIT, [UK announced new trade measures to support Ukraine](#) (25.04.22).

approach), whereas civil society and citizens preferred the CBAM to cover not only products but also parts of the value chain related to the product.<sup>49</sup>

The final design choice reflected concerns that the Commission raised in its impact assessment about WTO-incompatibility of pursuing an option that converted ETS charges into other types of economic instruments, such as taxes or customs charges.

While there was support for CBAM within the EU energy-intensive sectors covered by the measure during consultation<sup>50</sup>, the response to the Commission's July 2021 proposal among these industries has not been wholly favourable. Industry associations representing the covered sectors have called for reforms to the Commission's proposal including slowing the phase-out of free allowances, stronger measures to prevent circumvention of CBAM charges and strengthened support for exporters.<sup>51</sup>

Beyond the covered sectors, views from EU industry have also been mixed, which has translated into mixed support for the measure among EU Member States. In particular, downstream manufacturing industries who rely upon primary commodities for inputs have expressed concern about CBAM on the basis that it will increase prices and disrupt supply chains. These concerns are evident in an analysis done by the European Council on Foreign Relations, which found that seven EU countries thought that CBAM's impact on supply chains were among the top challenges of the European Green Deal: Denmark, Finland, France, Latvia, Malta, Romania and Sweden.<sup>52</sup>

## II. Due diligence requirements (including embodied emissions reporting)

The previous section considered the EU's explicit carbon pricing through its ETS, and prospects for combatting leakage through the introduction of CBAM in place of free allowances. Both the UK and the EU have also introduced due diligence requirements for monitoring GHG emissions in sectors that fall outside the ETS.

Starting in April 2022, the UK is introducing climate-related financial disclosure regulations, requiring that publicly quoted companies, large private companies and LLPs disclose information on their financial exposure to climate risk. While the UK is the first country in the G20 to require this<sup>53</sup>, it has not extended mandatory reporting requirements on environmental sustainability to countries exporting to the UK, despite calls for enhanced requirements from some UK businesses.<sup>54</sup>

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<sup>49</sup> European Commission, [Impact Assessment Report](#) SWD(2021) 643, Annex 2: Stakeholder consultation, pp14-15.

<sup>50</sup> EUROFER, [Joint statement by energy intensive sectors](#) (Jan 2022).

<sup>51</sup> E Virchenko, [Five industry bodies team up to call for changes to EU Carbon Border Adjustment Mechanism](#) (Fastmarkets 01.02.22).

<sup>52</sup> European Council on Foreign Relations, [Europe's green moment: How to meet the climate challenge](#) (Apr 2021).

<sup>53</sup> HM Treasury, [UK Joint Government Regulator Taskforce on Climate-related Financial Disclosures: Interim Report and Roadmap](#) (Nov 2020); BEIS, [Mandatory climate-related financial disclosures by publicly quoted companies, large private companies and LLPs](#) (consultation 24.03.21 to 05.05.21); BEIS, [UK to enshrine mandatory climate disclosures for largest companies in law](#) (29.10.21).

<sup>54</sup> Business & Human Rights Resources Centre, [UK businesses and investors call for new human rights due diligence law](#) (21.10.21).



In contrast, the EU is extending due diligence requirements on exporters through a proposed Directive on Corporate Sustainability Due Diligence (2019/1937) which focuses on environmental and human rights concerns.<sup>55</sup> Third countries' companies that fall under the scope of the proposed Directive are required to take a number of actions to comply with their due diligence obligation. Additionally, these companies are required to present plans of an undertaking to ensure that their business model and strategy are compatible with the transition to a sustainable economy and with the limiting of global warming to 1.5°C in line with the Paris Agreement. Sanctions can be imposed by Member States and, under certain conditions, companies are liable for damage if their failure to comply with the Directive results in an adverse impact.

### III. Low carbon public procurement

Green public procurement commitments are essential in signalling to the market: while public sector procurement alone cannot drive a low carbon transition, the value of these contracts mean that they can make a significant contribution. In September 2021, the UK implemented new rules and requirements for companies to commit to achieving net zero emissions when bidding for government contracts worth more than £5 million a year.<sup>56</sup> Moreover, as part of the Procurement Policy Note 06/21, businesses are also required to provide a detailed Carbon Reduction Plan containing detailed measurements of their greenhouse gas emissions.<sup>57</sup>

Green public procurement constitutes a trade measure in that the UK is party to the WTO Government Procurement Agreement (GPA), under which it has committed to liberalising procurement in some areas. We further discuss the interaction between GPA obligations and low carbon procurement in Section D.

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<sup>55</sup> European Commission, [Proposal for a Directive of the European Parliament and of the Council on Corporate Sustainability Due Diligence](#), COM(2022) 71 final, p7.

<sup>56</sup> Cabinet Office, [Companies bidding for major government contracts face green rules](#) (30.0921).

<sup>57</sup> Government Commercial Function, [Procurement Policy Note 06/21: Taking account of Carbon Reduction Plans in the procurement of major government contracts](#) (Aug 2021).



## B. Plurilateral approaches

Table C.2 Plurilateral approaches to Border Carbon Adjustment

|                                      | Nordhaus' optimal model (2015)                       | GASSA (US-EU, 2021)  | German G7 proposal (2021)  |
|--------------------------------------|--|--|--|
| <b>Membership criteria</b>           | Shared carbon price                                  | Like-minded economies  | 1.5 degree target, climate neutrality by 2050, ambitious interim targets   |
| <b>Trade measures on non-members</b> | Low flat-rate tariff on all goods                    | Trade remedies, tariffs (legal basis unspecified)  | Possible introduction of joint BCA - but may not be necessary  |
| <b>Objectives</b>                    | Overcome free-riding in international climate policy | Restore market-oriented conditions, support the reduction of the carbon intensity of steel and aluminium | Value chains for climate-neutral production (energy-intensive industry, hydrogen). Medium term: uniform measurement of GHG emissions, uniform minimum price for GHG emissions (implicit or explicit) |

### I. Cooperation on embedded emissions

In the lead up to COP 26, the EU and US produced a statement agreeing to work toward a 'Global Arrangement on Sustainable Steel and Aluminium' (GASSA).<sup>58</sup> While the Arrangement is initially limited to the US and EU, the proposal states that it is open in principle to 'like-minded economies', though precise membership criteria remain unspecified. As part of GASSA, the US hopes to circumvent the problem of asymmetrical carbon pricing by setting up a working group with the EU to 'confer on methodologies for calculating steel and aluminium carbon-intensity and share relevant data.' Assuming progress is made, this will likely hasten dissemination of such methodologies in the steel and aluminium sector.

The GASSA approximates a 'climate club', an idea most famously put forth by Nordhaus in a Nobel Prize winning proposal.<sup>59</sup> In this proposal, members of the club commit to price carbon at the same level, and impose tariffs against countries who do not. Nordhaus considered two potential models. The first is that countries apply domestic carbon duties to imported products or, in the case of an Emissions Trading Scheme, require that their producers buy emissions permits that are equivalent to domestic prices for their carbon content. The second is that countries in the club have a shared carbon price and apply a low flat-rate tariff across the entire spectrum of goods from non-participants.

The GASSA falls closer to Nordhaus's first option but requires that the US and EU agree that US domestic regulatory costs (implicit carbon price) are equivalent to EU ETS prices. It also

<sup>58</sup> [Joint EU-US Statement on a Global Arrangement on Sustainable Steel and Aluminium](#) (31.10.21).

<sup>59</sup> W Nordhaus, [Climate clubs: overcoming free-riding in international climate policy](#) (2015) 105(4) American Economic Review 1341.

merges two policy objectives: emissions reduction and addressing excess capacity from countries that the US and EU have identified as being non-market economies. Concerns about overproduction of key commodities, primarily in China, have led the US, EU and Japan to seek reforms to WTO rules.<sup>60</sup> This mix of objectives is clear in the EU-US Joint Statement, which states that (among other objectives) participants would:

- restrict market access for non-participants that do not meet conditions of market orientation and that contribute to non-market excess capacity;
- restrict market access for non-participants that do not meet standards for low carbon intensity; and
- refrain from non-market practices that contribute to carbon-intensive, non-market oriented capacity.

While the precise trade policy instruments used to combat low carbon steel and aluminium are not specified (only that their market access would be 'restricted'), the conflation of aims weakens the proposal's ability to address emissions reduction. For example, even if China produces low carbon steel and aluminium, the wording suggests that it would still be subject to tariff measures on the basis that these were produced following 'non-market practices.' (The US-EU response to this might be that it is too difficult to incentivise investment to bring about low carbon steel without a market-driven steel sector.)

Also, while the instrument is designed to penalise the excessive use of subsidies in some countries and contexts, it is introduced against the backdrop of an increase in subsidies in the G20 as a whole, with Global Trade Alert identifying products of iron and steel as the most exposed sector to 'harmful state interventions.'<sup>61</sup>

The GASSA was negotiated as a precursor to removal of Trump-era tariffs on steel and aluminium that were imposed in response to alleged national security concerns, as well as rebalancing measures that the EU imposed to respond to these tariffs. The UK has recently secured the removal of these tariffs. Its Joint Statement with the US heavily emphasises concerns about non-market excess capacity, as opposed to carbon intensity, the countries have agreed to 'confer on entering into discussions on global steel and aluminium arrangements to address both non-market excess capacity as well as the carbon intensity of the steel and aluminium industries.'<sup>62</sup> Thus, following negotiations, the UK may be positioned to enter into the GASSA with the US and EU, assuming that it comes to fruition, though there is a lack of clarity about how much space for negotiations there is.

## II. G7 Climate Club

Germany, which currently holds the G7 presidency, has promoted the idea of a climate club within the G7. In contrast to the opaque membership requirements for the Arrangement on Steel and Aluminium, this club explicitly aims to start with the G7 but then widen

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<sup>60</sup> [Joint Statement of the Trilateral Meeting of the Trade Ministers of Japan, the United States and the European Union](#) (14.01.20).

<sup>61</sup> This is set out in the [Global Trade Alert Report](#) for 2021. GTA also identifies 'products of iron or steel' as the sector most affected by harmful trade interventions.

<sup>62</sup> [US-UK Joint Statement: Steel and aluminum](#) (22.03.22).

membership based on commitment to net zero targets, clear interim targets and limiting warming to 1.5°C. At the time of writing, Germany has yet to define the policy basis for the climate club, but offers a series of options, including a joint CBAM.<sup>63</sup>

It remains unclear how this would interact with EU CBAM, or whether it is feasible for a subset of EU Member States to pursue this alone. The proposal suggests openness to recognising equivalence based on implicit pricing (regulatory costs) rather than an explicit carbon price, and identifies developing methodologies for embedded emissions as a key area of cooperation. If agreed, its initial membership will be wider than the GASSA, including Japan, Canada and the UK.

## C. International cooperation

### I. Standards

Accurately measuring GHG emissions poses an important challenge to a global effort to reduce them. The complexity of carbon emission quantification together with different accounting methodologies makes global tracking and comparisons difficult. For instance, measurements can consider the carbon content of products, or they can consider the levels of emissions generated by facilities or organisations. Harmonising international standards and methodologies can facilitate design of trade policies targeted at reducing carbon emissions.

Internationally, a number of different organisations and initiatives aim to develop and support international standards. A March 2022 brief by the WTO notes that “WTO rules on product standards and regulations play an important role in ensuring countries’ methodologies for measuring carbon content are aligned and are therefore effective in reducing global emissions.”<sup>64</sup> This is based on concepts embodied in the WTO’s Agreement on Technical Barriers to Trade (the ‘TBT Agreement’):

- Aligning standards and regulation to common international standards;
- Verifying and communicating measurement results along the value chain; and
- Providing support to developing countries to participate in the development of new standards and to accurately measure the carbon content of their products.

On the first point, one notable existing international standard is the Greenhouse Gas Protocol (GHG Protocol), which supplies the world’s most widely used greenhouse gas accounting standards for businesses, governments and other entities. Some of the more recent developments by the GHG Protocol include the Product Life Cycle Accounting and Reporting Standard used to understand the full cycle emissions of a product, including raw materials, manufacturing, transportation, storage, use, and disposal.<sup>65</sup> Also new standards have been developed to help the financial industry measure and report emissions known as the Global GHG Accounting and Reporting Standard for the Financial Industry.

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<sup>63</sup> BMF, AA, BMWi, BMU, BMZ, [Steps towards an alliance for climate, competitiveness and industry – building blocks of a cooperation and open climate club](#).

<sup>64</sup> WTO, [WTO rules on product standards help align carbon content measurements, new report finds](#) (25.03.22).

<sup>65</sup> Greenhouse Gas Protocol, [Product Standard](#).

Another notable example is the International Organisation for Standardisation (ISO). ISO is non-binding, voluntary and therefore not ‘intergovernmental’.

ISO 14000 refers to a set of standards created to help companies around the world reduce the adverse environmental impact of their operations. Within it, standards on ‘greenhouse gas management and related activities’ include 13 published ISO standards developed by 59 participating members<sup>66</sup>, for example:

- ISO 14067:2018 sets out requirements and guidelines for quantification and reporting for the carbon footprint of products; and
- ISO 14064-1:2018 provides guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals.

The ISO has a working group that is reviewing all of its climate-related standards and seeking to make them Paris-compliant.

The Industrial Deep Decarbonisation Initiative (IDDI) of the UN Industrial Development Organisation (UNIDO), co-led by the UK and India, presents another relevant attempt at standardising how the carbon emission of products, namely steel and cement, is measured. Its ultimate goals are to encourage governments and the private sector to buy low carbon steel and cement and it aims to develop key definitions, tools, guidelines and publicly accessible data to enable industry to conduct rigorous reporting and industry benchmarking.<sup>67</sup> A call for interest to set up Working Groups is part of the ongoing process towards developing this. The IDDI has the potential to make a significant contribution to increasing demand-side levers that stimulate the market for low carbon industrial products because it encourages members to make pledges for joint procurement targets and has the potential to ratchet up over time, avoiding the problem of locking in standards too soon.

New UK standards for electrical appliances, which aim to extend the lifespan of products and encourage consumers to buy more energy-efficient products, are in line with those set by the International Electrotechnical Commission (IEC). Reducing the greenhouse gas emissions of electrical and electronic products can be facilitated through IEC efforts to develop international standards that provide guidance for the quantification and communication of greenhouse gas emissions.<sup>68</sup>

OECD presented a set of policy indicators on trade and environment in 2019<sup>69</sup>, which are included in the OECD Environment Statistics database.<sup>70</sup> The policy indicators are understood as building blocks for further development and include a set of three indicators relating to carbon emissions in trade.<sup>71</sup> The latter is based on the OECD’s Inter-Country

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<sup>66</sup> ISO, [ISO/TC 207/SC 7 Greenhouse gas and climate change management and related activities](#) (2007).

<sup>67</sup> UNIDO, [Industrial Deep Decarbonisation Initiative](#).

<sup>68</sup> Etech, [Using standards to quantify greenhouse gas emissions](#) (09.07.21).

<sup>69</sup> G Garsous, [Trends in policy indicators on trade and environment](#) (OECD Trade and Environment Working Papers 2019/01) (2019).

<sup>70</sup> OECD, [OECD Environment Statistics](#).

<sup>71</sup> OECD’s Trade in Embodied CO<sub>2</sub> (TECO<sub>2</sub>) database; OECD, [Air and climate: carbon dioxide emissions embodied in international trade](#) (2020).

Input-Output database and the IEA's statistics on carbon emissions from fuel combustion, and includes:

- CO2 emissions based on production. The amount of carbon emissions from fossil fuel combustion embodied in imports and exports, which aims to support analysis of the relationship between domestic production and cross-country differences in environmental policy.
- CO2 emissions embodied in domestic final demand. The hypothetical amount of carbon emissions from fossil fuel combustion embodied in imports, if imported goods were produced domestically with an equal carbon intensity to that of the importing country. This supports analysis of how far relocation occurs in more carbon-intensive countries.
- Net exports of CO2 emissions. The estimated growth in imported emissions derived from changes in the volume of imports, changes in the composition of imports and changes in carbon intensity in countries where emissions are generated. This allows analysis of how far composition of imported goods follows patterns of specialisation predicted by pollution leakages.

An OECD review of work on carbon leakage suggests that environmental policies were not found to be a major driver of international trade patterns, but they do have a significant effect on specialisation in line with the pollution haven effect.<sup>72</sup> The OECD analysis found that more stringent environmental policies result in a loss in competitiveness in pollution-intensive activities, and a comparative advantage in 'cleaner' industries. Generally, industrial processes in OECD countries are less carbon-intensive than those in non-OECD countries, however processes in OECD and non-OECD countries are becoming more efficient.

In sum, while a number of regional and international organisations, and standardising bodies, are working toward the creation of harmonised standards in this area, this process is ongoing and there is no clear international consensus about methodologies and standards.

## II. Labelling

Labelling, and specifically eco-labelling, can be a useful tool to signal producers and consumers of environmentally friendly goods and services. For the former, labelling can act as a form of communication along value chains, and can also encourage competition between manufacturers to improve their products. For the latter it can encourage the consumption of products that are more energy efficient or associated with lower embodied emissions.

The abundance of different standards across countries, however, can act as non-tariff barriers (NTBs) that can thus hinder the amount of trade of green goods and green services. In fact, it is estimated that there are over 400 different eco-label schemes across 200 countries in 25 industry sectors.<sup>73</sup> This highlights, once again, the need for an internationally harmonised standard initiative. In the WTO Committee on Trade and Environment, WTO

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<sup>72</sup> OECD, [OECD work on trade and the environment: a retrospective 2008-2020](#) (2020), pp58-62.

<sup>73</sup> [Ecolabel Index](#).

members have raised further concerns on the discriminatory effects that eco-labelling can have on developing countries' and small businesses' ability to export.

The ISO range of standards for environmental labels can be a useful tool to provide harmonised criteria, definitions and guidelines for environmental labelling. Specifically, the ISO 14020 series of standards provides economic agents with “an internationally recognised and agreed set of benchmarks against which they can prepare their own environmental labels and declarations.”<sup>74</sup> In a similar manner, the Global Ecolabelling Network (GEN) works towards developing a mutual recognition programme and common core criteria to qualify for the eco-label to facilitate more sustainable production.

#### 4. Embodied emissions: agricultural deforestation

As well as new initiatives on addressing embodied emissions in industry, there is a growing interest in using trade policy measures to address deforestation. Such measures aim to address a range of environmental objectives, including the contribution of agricultural land conversion to climate change. In this section we review *autonomous* measures to address indirect land use change and agricultural deforestation more broadly; we then review *plurilateral* approaches to addressing deforestation and agricultural land conversion.

##### A. Autonomous approaches

###### I. Legislation against indirect land-use change (ILUC)

Indirect land-use change (ILUC) is the conversion of non-agricultural land into agricultural land to produce food, feed or fuels from biomass. The term, indirect, refers to land use change results from overall intensification of agricultural production in response to biofuel demand, rather than the direct conversion of land in order to produce biofuels. It is likely to increase GHG emissions, particularly when it occurs on land with high-carbon stock (forests, wetlands and peatland).<sup>75</sup>

###### (i) Biofuels

The strongest regulation attempting to prevent ILUC through agricultural conversion was introduced by the EU in 2018. This post-dated Brexit, and the UK has not introduced comparable requirements. The EU Renewable Energy Directive II (RED II Directive 2018/2001 EC) sets a binding target of at least 32% of renewable energy by 2030 (Art 3(1)), and requires Member States to meet a minimum share of renewable energy in the transport sector (Art .25(1)). However, due to the high ILUC risk associated with the production of biofuels, bioliquids and biomass fuels, the Directive sets national limits for biofuels, bioliquids and biomass fuels produced from food or feed crop for which a significant expansion of the production area into land with high carbon stock is observed (Art 26(2)). According to these limits, by 2030, none of these sources of energy will be integrated in the share of national renewable energy unless they are certified as ‘low ILUC risk’. Certification can be granted to fuels produced from additional feedstock that has been grown on unused

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<sup>74</sup> ISO, [Environmental labels](#) (2019).

<sup>75</sup> European Commission, [Report on the status of production expansion of relevant food and feed crop worldwide](#) (2019) COM(2019) 142 final, p3.

land or that is the result of a productivity increase (Art. 2(37) RED II and Art. 4 Regulation 2019/807).

The European Commission recognised that ILUC emissions cannot be measured or observed directly. As a result, Regulation 2019/807 introduces a methodology to define “biofuels, bioliquids and biomass fuels produced from food or feed crop for which a significant expansion of the production area into land with high carbon stock is observed” on a global level (Art. 3 and Annex to Regulation 2018/807). First, the global expansion of feedstock used for producing biofuels, bioliquids and biomass fuels into land with high-carbon stock must be identified: all areas that were forest in January 2008 count as deforested areas if they are used for the production of biofuel feedstock. Second, a ‘significant’ feedstock expansion must be defined through three criteria: the magnitude of the land expansion since a specific year compared to the total production area of the relevant crop; the share of this expansion into land with high carbon stocks; and the type of relevant crops and areas with high carbon stock.<sup>76</sup> If the global share of expansion is higher than 10%, it is considered ‘significant’.

Palm oil is the only biofuel that the EU has categorised as being a high ILUC risk<sup>77</sup>, resulting in a *de facto* ban of biodiesel from palm oil. The EU’s methodology has been criticised by Indonesia, a major palm oil producer, in a WTO dispute which is currently pending. According to Indonesia, “the European Commission opted for an approach based on the alleged overall worldwide position with respect to each particular feedstock, and not for a transparent methodology based on the circumstances in a particular country or the particular circumstances of production, including the management of land.”<sup>78</sup>

## (ii) Deforestation

### EU regulation

The Commission’s Communication, ‘Stepping up EU Action to Protect and Restore the World’s Forests’, identifies the reduction of the consumption footprint on land as a priority, and encourages the consumption of products from deforestation-free supply chains. Currently, deforestation is addressed by the EU Timber Regulation (Regulation 995/2010), which prohibits the import of illegally logged timber, and by the FLEGT Regulation (Regulation 2173/2005), which combats illegal logging through a FLEGT Voluntary Partnership Agreement with its trading partners.

The recent Fitness Check conducted by the European Commission shows that these two instruments have not met their objectives.<sup>79</sup> As a result, the Commission is planning to replace them by two new regulations, which should enable the EU to achieve its recent commitments under the New York Declaration on Forests, the Glasgow Leaders’ Declaration

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<sup>76</sup> Ibid, p12.

<sup>77</sup> Ibid, p3.

<sup>78</sup> [European Union — Certain measures concerning palm oil and oil palm crop-based biofuels](#) (DS593), para 21.

<sup>79</sup> European Commission, [Executive Summary of the Fitness Check on Regulation 995/2010 and Regulation 2173/2005](#), SWD(2021) 329 final.



on Forests and Land Use, the EU Green Deal, the Farm to Fork Strategy and the Biodiversity Strategy for 2030.

Among other objectives, the proposed Deforestation Regulation (2021/0366) aims to reduce carbon emissions due to EU consumption and production by at least 32 million metric tons a year.<sup>80</sup> For six commodities, namely cattle, cocoa, coffee, oil palm, soya and wood<sup>81</sup>, it introduces a due diligence obligation, paired with a country benchmarking system that categorises countries as high and low risk. Operators' obligations vary depending on the level of risk that the country of production represents, with simplified due diligence duties for low-risk and enhanced scrutiny for high-risk countries. Placing or making available on the EU market relevant commodities or products that are not compliant with the proposed Regulation is prohibited.

### **Forest risk commodities UK legislation**

Section 116 and Schedule 17 of the Environment Act 2021 covers the use of forest risk commodities in commercial activity. Timber supply chains are currently regulated under retained EU law in England, Scotland and Wales<sup>82</sup> and under EU law in Northern Ireland. Schedule 17 provides for the new regime framework, in terms of the meaning of 'forest risk commodity', prohibition on use of illegally produced commodities, due diligence system(s), annual reporting, exemptions, guidance, enforcement and review, further details are to be set out in secondary legislation. Defra ran a consultation on the prospective legislation in 2020<sup>83</sup> and a consultation on implementation closing in March 2022.<sup>84</sup>

The key requirement is that 'regulated persons must not use forest risk commodities in their UK commercial activities unless relevant local laws are complied with' (Sch 17, Pt 1, para 2(1)). Current regulations, as well as the EU proposals, apply to all businesses regardless of their size, annual trading volumes or annual turnover. In contrast under the 2021 Act, 'regulated persons' are to be defined in relation to turnover, or whether they are a subsidiary, in forthcoming secondary legislation to be made by the Secretary of State (Sch 17, Pt 1, para 7). As such, certain businesses may not be regulated under the new regime. 'Relevant local law' is defined as property, land use or related land law in the country of origin and 'only if it relates to the prevention of forest being converted to agricultural use' (Sch 17, Pt 1, paras 2(4) and 2(5)). This also limits the application of the regime. There are further exemptions accepted under the Act on the basis of prescribed thresholds (Sch 17, Pt 1, para 5).

The Secretary of State will review the effectiveness of the regime in terms of the amount of forest being converted to agricultural use for the purposes of producing commodities, the impact of relevant provisions on the amount of land converted, the impact on use of forest

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<sup>80</sup> European Commission, [Proposal for a Regulation on deforestation-free products](#).

<sup>81</sup> Relevant products are those listed in Annex I, that contain, have been fed with or have been made using relevant commodities.

<sup>82</sup> Including Timber and Timber Products (Placing on the Market) Regulations 2013; Forest Law Enforcement, Governance and Trade Regulations 2012; Timber and Timber Products and FLEGT (EU Exit) Regulations 2018; Timber and Timber Products and FLEGT (Amendments) (EU Exit) Regulations 2020. For guidance, see Office for Product Safety and Standards, [Regulations: timber and FLEGT licences](#) (Feb 2022).

<sup>83</sup> Defra, [Due diligence on forest risk commodities](#) (Oct 2020).

<sup>84</sup> Defra, [Implementing due diligence on forest risk commodities](#) (Mar 2022).



risk commodities in UK commercial activities and any changes to relevant local laws (Sch 17, Pt 3).

## B. Plurilateral approaches

### I. FACT dialogue and Glasgow Leaders' Declaration on Forests and Land Use

While not a trade policy measure in itself, the FACT Dialogue is a multi-stakeholder mechanism which aims at shifting commodity markets towards more sustainable land use practices.<sup>85</sup> A taskforce, monitored by Tropical Forest Alliance, seeks to ensure the voices of all stakeholders are considered. In 2021, 28 Countries – including the UK – issued a joint statement and agreed on a series of principles to work together “to protect the world’s precious forests while also promoting sustainable trade.”<sup>86</sup>

The Glasgow Leader’s Declaration on Forests and Land Use, an output of COP 26, provides a multilateral, incentive-based approach to halting agricultural deforestation, which can help to support the initiatives described above. The Declaration was endorsed by 145 countries, which together account for over 90% of forests worldwide.<sup>87</sup> The Declaration affirms countries’ shared efforts to conserve forests and accelerate their restoration, mainly by promoting sustainable agricultural practices, and recognises the critical role of forests in balancing greenhouse emissions.

In addition, the Global Forest Finance Pledge, led by 12 donor countries, commits public and private funding to support and strengthen action in developing countries to restore degraded land, tackle wildfires and advance the rights of Indigenous Peoples and local communities.<sup>88</sup> In line with this, there are commitments from numerous financial institutions to eliminate investments in activities linked to agricultural commodity-driven deforestation.<sup>89</sup>

## 5. Subsidies

Subsidies are relevant to trade policy because 1) they comprise an important element of the UK’s domestic decarbonisation/emissions reduction plans; 2) they are subject to WTO disciplines; and 3) there are initiatives on plurilateral cooperation to promote cooperation on phasing out inefficient/harmful fossil fuel subsidies. Here we examine briefly the domestic and plurilateral trade policy issues pertaining to subsidies in three areas: fossil fuel subsidies, fertiliser subsidies, and renewable energy subsidies. First, we set out broad issues in the relationship between subsidies and WTO disciplines.

### A. The relationship between UK subsidies and WTO rules

The WTO Agreement on Subsidies and Countervailing Measures (the SCM Agreement) has been a focus for debates on whether WTO rules support or hinder countries in meeting net

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<sup>85</sup> Tropical Forest Alliance, [About the FACT Dialogue](#).

<sup>86</sup> [Joint statement on principles for collaboration under the Forest, Agriculture and Commodity Trade \(FACT\) Dialogue](#) (May 2021).

<sup>87</sup> [Glasgow Leaders’ Declaration on Forests and Land Use](#) (Nov 2021).

<sup>88</sup> [The Global Forest Pledge](#) (Nov 2021).

<sup>89</sup> [Commitment on Eliminating Agricultural Commodity-Driven Deforestation](#) (Nov 2021).

zero targets. Under the Agreement, countries may apply tariffs to traded products to correct against so-called ‘actionable subsidies.’ An actionable subsidy is defined broadly as a financial contribution by a government or public body to a certain enterprise, industry or region. The financial contribution must confer an economic advantage, and encompasses grants, loans, tax exemptions, and research and design.

The SCM Agreement does not explicitly allow countries to justify the use of subsidies on environmental grounds. WTO subsidy rules thus do not differentiate between fossil fuel subsidies and renewable energy subsidies. Although there have been disputes about renewables subsidies<sup>90</sup>, it is notable that there has never been a formal complaint about fossil fuel subsidies. This is the case, even though fossil fuel subsidies have historically received more subsidies than renewables and continue to do so. The Glasgow Climate Pact records that financial flows in GHG-intensive activities ‘remain concerningly high’ with fossil fuel investments globally at \$977 bn in 2017-2018 and fossil fuel subsidies at \$472 bn.<sup>91</sup> Despite commitments to a green recovery from Covid, and in the context of the war in Ukraine, fossil fuel use and subsidies globally are now rebounding.<sup>92</sup>

A further consideration is the low level of adherence to WTO rules on subsidies. Subsidies are increasing globally, with the global pandemic seeing unprecedented use of subsidies, and few are being notified to the WTO as required.

## II. Prospects for plurilateral cooperation on fossil fuel subsidies

UK engagement with international efforts to reform fossil fuels offers an opportunity to build international consensus on removing harmful subsidies. Global leaders have made multiple commitments to phase out support for fossil fuels. These include:

- In September 2009, the G20 countries committed to phasing out ‘inefficient fossil fuel subsidies’, i.e. those that encourage wasteful consumption.<sup>93</sup>
- Art 2(c) of the Paris Agreement 2015 commits Parties to ‘making finance flows consistent with a pathway towards low greenhouse gas emissions.’
- In September 2019, an initiative of six countries – New Zealand, Costa Rica, Fiji, Iceland, Norway and Switzerland – moved towards an Agreement on Climate Change, Trade, and Sustainability (ACCTS), which aims for the removal of tariffs on environmental goods and services and disciplines to ‘eliminate harmful fossil fuel subsidies.’<sup>94</sup>
- In December 2020, the Friends of Fossil Fuel Subsidies Reform group of countries, together with the UK as host of the COP26 in 2021, issued a statement calling for ‘support for accelerated of action to eliminate fossil fuel subsidies.’<sup>95</sup>

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<sup>90</sup> The Appellate Body has never decided that feed-in tariffs for renewable energy themselves contravene WTO rules, but focused on local content requirements, examined further below.

<sup>91</sup> UNFCCC, [Report of the Conference of the Parties FCCC/CP/2021/12/Add](#) (08.03.22), para 46.

<sup>92</sup> International Energy Agency, [Energy subsidies: tracking the impact of fossil fuel subsidies](#).

<sup>93</sup> [G20 Leaders' Statement: The Pittsburgh Summit](#) (Sept 2009).

<sup>94</sup> New Zealand Foreign Affairs and Trade, [Agreement on Climate Change, Trade and Sustainability \(ACCTS\) negotiations](#).

<sup>95</sup> FFSR, [Statement on Global Fossil Fuel Subsidy Reform on the Fifth Anniversary of the Paris Agreement and FFSR Communiqué](#) (Dec 2020).

- In November 2021 at COP 26, the agreed Glasgow Climate Pact calls upon Parties to ‘rapidly scale up the deployment of clean power generation’ and ‘accelerate efforts towards the phasedown of unabated coal power and the phase out of inefficient fossil fuels subsidies.’<sup>96</sup>
- In April 2021, the High Ambition Coalition for Climate Change, not including the UK, issued a statement calling for a ‘halt to inefficient fossil fuel subsidies as soon as possible.’<sup>97</sup>
- In December 2021, a group of 45 WTO Members, including the UK, proposed a Fossil Fuel Subsidies Ministerial Statement ‘seeking the rationalisation and phase out of inefficient fossil fuel subsidies that encourage wasteful consumption.’<sup>98</sup>
- The Beyond Oil and Gas Alliance is an international alliance of governments and stakeholders working together to facilitate the managed phase out of oil and gas production.

### III. Coordinating elimination of fossil fuel subsidies through trade agreements

Free trade agreements provide scope for cooperation on subsidies. The proposed Agreement on Climate Change, Trade and Sustainability between New Zealand, Costa Rica, Fiji, Iceland and Norway, encourages climate change mitigation alongside trade promotion and is the first to promise binding commitments to phase out fossil fuel subsidies. It has not yet been negotiated, and so the content of those commitments remains speculative.

The UK-New Zealand FTA (signed in 2022) contains the strongest commitments on fossil fuel subsidies in any FTA to date. Both Parties agree to ‘take steps to eliminate harmful fossil fuel subsidies where they exist’ and stop fossil fuel export support (Art 22(8)(2)). The FTA does not require either Party to change its approach to defining fossil fuel subsidies, and thus take additional steps toward elimination, however enshrining these domestic commitments is still a meaningful step in integrating climate concerns into trade agreements.

## C. Fertiliser subsidies

### I. The UK’s domestic approach

Fertiliser is a major contributor to GHG emissions. Fertiliser policy is devolved in the UK and agri-environment schemes in development across the UK are proposing regulatory measures to reduce emissions and pollution from agriculture. Notably, a provisional cross-UK Common Framework for fertilisers was agreed in February 2022 and establishes a UK Fertilisers Regulatory Committee (UKFRC) to develop UK fertiliser policy.<sup>99</sup> Taking England as an example of a current approach, agricultural policy measures relating to fertilisers currently include:

- New slurry guidance and grants associated with farming rules for water;
- Changes to urea usage by means of an industry farm assurance scheme;

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<sup>96</sup> UNFCCC, [Report of the Conference of the Parties FCCC/CP/2021/12/Add](#) (08.03.22), para 20.

<sup>97</sup> High Ambition Coalition, [COP 26 Leaders’ Statement](#) (April 2021).

<sup>98</sup> WTO General Council, [Proposed Fossil fuel Subsidies Ministerial Statement JOB/GC/264/Rev.3](#) (18.11.21).

<sup>99</sup> HM Government, [Fertilisers Common Framework: Provisional framework outline agreement and concordat](#) (Feb 2022).

- Creation of a fertiliser roundtable; and
- Related support under existing agri-environment schemes, Agricultural Transition schemes and the new Sustainable Farming Incentive.<sup>100</sup>

In response to global issues, including rising gas prices and the war in Ukraine, the proposed changes to urea usage (England)<sup>101</sup> have been delayed and replaced by new standards under the existing Red Tractor Farm Assurance scheme<sup>102</sup> and advisory services from the Fertiliser Industry Assurance Scheme.<sup>103</sup> Further applicable regulatory frameworks are those for nitrate vulnerable zones and nutrient sensitive areas, as well as river basin management, currently implemented across the UK as retained EU law. A private market for payment for environmental services is emerging, such as that operated by Entrade, which establishes contracts with farmers and other land managers to reduce nitrogen pollution.<sup>104</sup>

There is a two-year 'transition period' until 1 January 2023 relating to trade in fertilisers between the EU and UK in respect of production and labelling.<sup>105</sup> Fertiliser can be manufactured in Great Britain under domestic legislation and in Northern Ireland under EU rules; the EC label may continue to be used for the transition period in accordance with those rules.

CF Fertilisers UK Ltd, a US-owned firm and one of the UK's leading fertiliser and ammonia suppliers, participates in the UK ETS and receives a free allocation of allowances.<sup>106</sup> In September 2021, the UK Government provided short-term financial assistance to CF Fertilisers as a response to their closure of two major plants in England.<sup>107</sup> This was followed by an industry price agreement until January 2022. The company has received Government funding for carbon capture and storage plants as part of the Industrial Decarbonisation Challenge fund, a competitive fund with match funding delivered by UKRI.<sup>108</sup>

## II. Prospects for plurilateral cooperation

Application of nitrogen fertiliser results in large amounts being lost to air and water. Until recently, international agreements relating to nitrogen policy were found under related policy areas for water quality, air quality, climate change, biodiversity and ozone depletion.<sup>109</sup> A 2022 report commissioned by WWF-UK sets out the environment impact of nitrogen use globally, and in the UK, provides an overview of existing international policy

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<sup>100</sup> Defra, [Fertiliser updates and support](#) (30.03.22); [Farming rules for water from April 2018](#) (Apr 2018); [Applying the farming rules for water](#) (Mar 2022); [Agricultural Transition Plan 2021 to 2024](#) (Nov 2020); [Multi-annual financial assistance plan 2021 to 2027](#) (Nov 2020); [Sustainable Farming Incentive: how the scheme will work in 2022](#) (Dec 2021). It is foreseen that nutrient management standards will be published in 2023.

<sup>101</sup> Defra, [Consultation on reducing ammonia emissions from solid urea fertilisers](#) (Nov 2020); Defra, [Reducing ammonia emissions from urea fertilisers](#) (20.03.22).

<sup>102</sup> [Red Tractor Certified Standards](#).

<sup>103</sup> Agricultural Industries Confederation, [FIAS – Fertiliser Industry Assurance Scheme](#).

<sup>104</sup> Entrade, [Our services](#).

<sup>105</sup> Defra, [Manufacturing and marketing fertilisers](#) (Dec 2020); European Commission, [Notice to stakeholders: Withdrawal of the United Kingdom and EU rules in the field of fertilisers](#) (28.09.20).

<sup>106</sup> BEIS, [UK ETS Allocation Table for operators of installations](#) (Mar 2022).

<sup>107</sup> BEIS, [New agreement to ensure supplies of CO2](#) (Feb 2022).

<sup>108</sup> UKRI, ['UKRI awards £171m in UK decarbonisation to nine projects'](#) (Mar 2021).

<sup>109</sup> M Sutton et al, ['The nitrogen decade: mobilising global action on nitrogen to 2030 and beyond'](#) (2021) 4(2) One Earth 10.

measures, and recommends the implementation of nitrogen budgeting approach in the UK.<sup>110</sup> The report also reviews the role and design of fiscal measures, including the modelling literature, and highlights that taxes on artificial fertilisers have been controversial with farmers.

Selected international and regional agreements include:

- The Task Force on Reactive Nitrogen, established in 2007 under the UN Economic Commission for Europe's Convention on Long-Range Transboundary Air Pollution, has developed technical guidance, including on agricultural practice for reducing ammonia emissions.<sup>111</sup>
- The UN Environment Assembly adopted a Resolution on Sustainable Nitrogen Management at UNEA-4 in 2019.<sup>112</sup> A Nitrogen Working Group is establishing an intergovernmental body, the Inter-Convention Nitrogen Coordination Mechanism, to implement the UNEA-4 Resolution.<sup>113</sup>
- The 2019 Colombo Declaration on Sustainable Nitrogen Management, under the auspices of the UN Environment Programme, agreed on a goal of halving nitrogen waste by 2030 by means of National Nitrogen Action Plans and endorsed the UNEP Roadmap for the UNEA-4 Resolution.<sup>114</sup>
- The EU's Biodiversity Strategy to 2030<sup>115</sup> and Farm to Fork Strategy<sup>116</sup> set goals of reducing nutrient losses to the environment from fertilisers by at least 50% by 2030, and the reduction of fertiliser use by at least 20% by 2030. Associated measures include sustainable nutrient management and precision fertiliser application under Integrated Nutrient Management Action Plans to be developed by the Commission and Member States under Common Agricultural Policy Strategic Plans.

#### D. UK renewables subsidies

In terms of renewable energy price support, the UK, like the EU, has favoured market-based policy instruments, which may be considered 'subsidy-free.'<sup>117</sup> The UK's Contract for Difference scheme (CfD)<sup>118</sup> is the main way the UK is supporting renewable energy generation. CfD subsidises renewable energy generation by guaranteeing prices, operates competitive bidding and is paid for through a tax on energy suppliers.

Such support measures, which involve competitive bidding and require energy suppliers to pay for generation, will not be considered as providing a competitive advantage or being

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<sup>110</sup> K Hicks et al, [Nitrogen: finding the balance. Towards a comprehensive approach to nitrogen in the UK](#) (summary report) (WWF-UK 2022).

<sup>111</sup> UNECE, [Reactive nitrogen](#).

<sup>112</sup> [UNEP Resolution on Sustainable Nitrogen Management](#) (UNEP/EA.4/Res.15) (2019).

<sup>113</sup> UNEP, [First e-briefing for the Nitrogen Working Group of the United Nations Environment Programme](#) (June 2020).

<sup>114</sup> UNEP, [Colombo Declaration calls for tackling global nitrogen challenge](#) (29.10.19); [Colombo Declaration on Sustainable Nitrogen Management](#) (2019).

<sup>115</sup> European Commission, [EU Biodiversity Strategy for 2030](#) (COM(2020) 380 final) (2020).

<sup>116</sup> European Commission, [Farm to Fork Strategy: For a fair, healthy and environmentally-friendly food system](#) (2020).

<sup>117</sup> S Evans, [What does "subsidy-free" renewables actually mean?](#) (Carbon Brief, 27.03.18)

<sup>118</sup> BEIS, [Contracts for Difference](#) (Feb 2022); see also [Allocation Round 4 resource portal](#) for current allocation.

conferred by public bodies, and thus not be ‘actionable’ in WTO terms. However, the Appellate Body has repeatedly made clear<sup>119</sup> that local content requirements (LCRs), which necessitate that a certain percentage of power generation equipment are manufactured domestically, are strictly prohibited under WTO non-discrimination rules. The EU has recently challenged the UK’s CfD bidding process<sup>120</sup> at the WTO on the basis that it incentivises operators to select UK content. This is not a challenge to the CfD itself, but rather alleged discriminatory practices in the bidding process.

Further schemes, such as the legacy feed-in tariffs funding small-scale renewables or the renewable heat incentive, largely target consumers and therefore do not come within WTO subsidy rules. Concerns around these UK price support mechanisms do not lie in their compliance with WTO subsidy rules, rather in the implementation and delivery of policy measures.<sup>121</sup>

Grants and investments targeting specific companies, both in respect of renewables and fossil fuels, are at risk of non-compliance with WTO rules. UK schemes have previously run on a competitive basis with additional safeguards to ensure integration with EU State Aid rules, however existing schemes, such as the Net Zero Innovation Portfolio<sup>122</sup>, require examination in detail in accordance with the emerging UK subsidy control regime. Investment in innovation in clean energy systems is crucial in achieving net zero.

The UK has previously operated its subsidy regime under EU state aid rules, i.e. subsidies were notified to the Commission and assessed for legality within the EU framework. The UK has introduced a new subsidy control regime<sup>123</sup>, which includes specific principles that apply to certain energy and environment subsidies derived from the commitments under the UK-EU Trade and Cooperation Agreement.

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<sup>119</sup> For example, [Canada — Certain Measures Affecting the Renewable Energy Generation Sector](#) (DS412) and [Canada — Measures Relating to the Feed-in Tariff Program](#) (DS426); [India — Certain Measures Relating to Solar Cells and Solar Modules](#) (DS456).

<sup>120</sup> [United Kingdom — Measures Relating to the Allocation of Contracts for Difference in Low Carbon Energy Generation](#) (DS612).

<sup>121</sup> CCC, [Joint Recommendations: 2021 Report to Parliament](#) (June 2021).

<sup>122</sup> BEIS, [Net Zero Innovation Portfolio](#) (Mar 2022).

<sup>123</sup> Subsidy Control Act 2022.

## Section D: Key design decisions for a border carbon adjustment and product standards

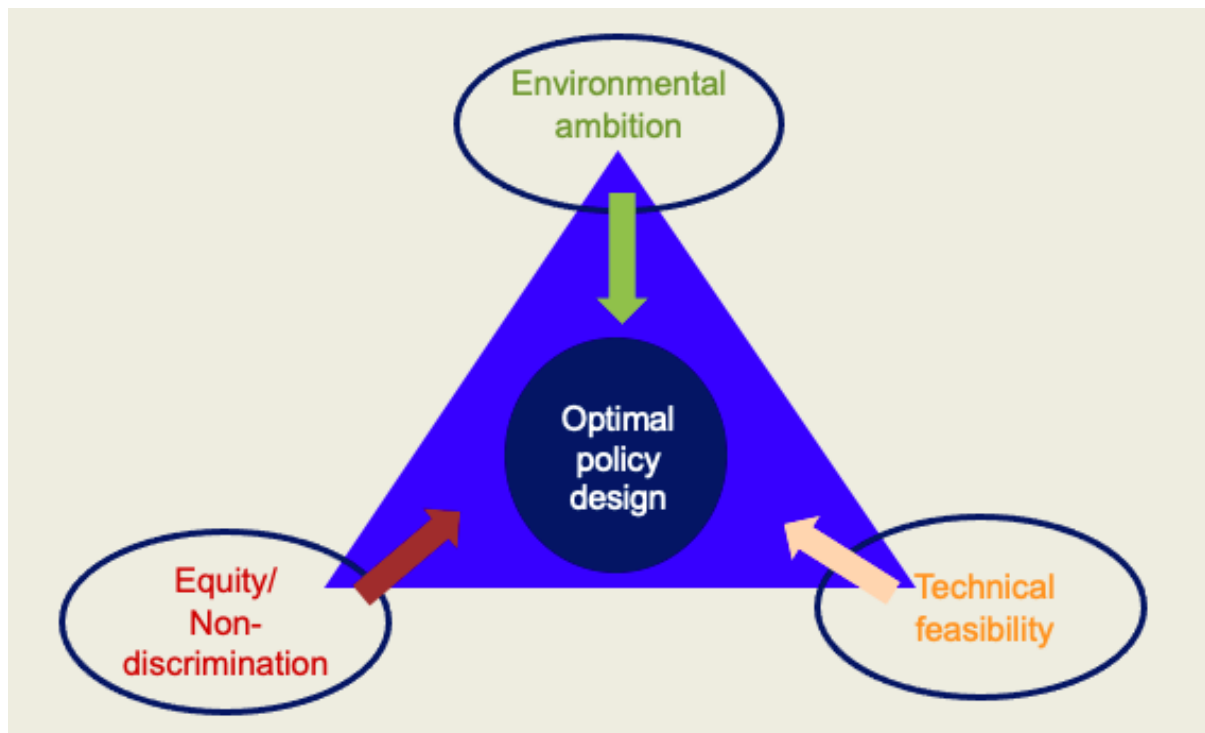
### 1. Introduction

In this section, we analyse the design decisions inherent in two major trade policy instruments that have been proposed to address concerns about carbon leakage and UK consumption emissions: Border Carbon Adjustment (BCA) and performance standards to capture embodied emissions.

We assess different design options against criteria of three main types:

1. contribution to environmental goals;
2. technical feasibility; and
3. impacts on international and domestic equity.<sup>124</sup>

Figure D.1 The top-level trade-offs



More specifically, we utilise nine summary measures. While these are high-level assessments, they provide some guidance at this preliminary stage of the analysis of the UK's options. They are as follows:

#### **Environmental goals**

- i) Addresses risk of carbon leakage satisfactorily.

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<sup>124</sup> This report updates and further develops the 'trilemma' design rubric developed in an earlier UK Trade Policy Observatory Briefing, E Lydgate, [The Carbon Border Adjustment trilemma](#) (May 2021).



- ii) Addresses consumption emissions more broadly.

**Technical feasibility goals**

- iii) The degree of complexity for traders, i.e. exporters to UK and/or UK importers.
- iv) The feasibility of compliance assessment for government and for any third-party verifiers used to verify firms’ claims on emissions.

**Equity goals: international**

- v) WTO legality (market-based tests). Does the BCA or standard treat products evenly regardless of their origin?
- vi) WTO legality (policy-based tests). Is the BCA or standard motivated by environmental concerns (rather than a desire to protect UK industry from foreign competition)
- vii) Are developing countries allowed to make smaller/fewer adjustments than developed countries?

**Equity goals: domestic**

- viii) Are there material costs to UK consumers as a direct result of the policy?
- ix) Are there costs or excessive complexity created directly for competing UK firms?

Different objectives apply with different degrees of force to different policy questions and will naturally be weighted differently by different stakeholders and commentators, and even different governments. They are in no sense additive.

Indeed, existing proposals underscore the array of choices and priorities available. For example, in its CBAM policy design, the European Commission (at the time of writing) has incentivised individual exporters to calculate their embodied emissions. This is a more rigorous approach, and thus more effective in combatting leakage and stimulating innovation (environmental goal), but, prioritising environmental ambition above technical feasibility, it is complex to apply and verify. It has also prioritised conformity with WTO non-discrimination principles by ensuring that the CBAM charges resemble the EU ETS, but hasn’t introduced any differential treatment for developing country exporters.

The Peters-Coons legislative proposal, in contrast, apparently puts relatively little weight on WTO-compliance and a higher priority on recognising the special needs of Least Developed Countries. It has not, however, provided enough detail for an assessment of its approach to calculating embodied emissions (see Section B for a fuller analysis of both).

We score options as follows:

|                                    |                                       |  |                   |            |
|------------------------------------|---------------------------------------|--|-------------------|------------|
| <b>Ineffective in meeting goal</b> | <b>Less effective in meeting goal</b> | <b>More effective, but some concerns</b> | <b>Meets goal</b> | <b>N/A</b> |
|------------------------------------|---------------------------------------|--|-------------------|------------|

The first part of the analysis focuses on decisions that underpin the use either of BCAs or performance standards: determining the scope of products at risk of leakage, the treatment of imports from developing countries, the prospects for climate clubs, and the possibility of



exempting UK exporters from charges or regulatory requirements. We then examine policy design considerations that are specific to a UK BCA or a regime of performance standards, respectively.

It should also be stressed at the outset that a UK carbon border policy is only one part of a wider climate-trade policy (as noted in the taxonomy in Section A). What we do not address here is the extent to which these trade policy measures interact with, and enable the UK to advance or pursue, other elements of its climate policy.

Clearly, the overarching objective is to harness trade and trade policy to support rapid decarbonisation and climate adaptation across the world, including in ways that support UK economic interests. But if the analysis focuses too narrowly on carbon leakage, the wider goal of what approaches would support decarbonisation everywhere could be missed.

Using border measures to address leakage is implicitly about driving change in other markets too, but it is not the only way to approach this issue, especially for countries that will need significant regulatory changes, investment and access to technology in order to do so. We address these issues in the discussion of developing countries, but they also provide overall context for this analysis.

*Table D.1 Elements of WTO compliance for UK BCAs and/or embodied emissions performance standards*

| Requirement   | WTO provision   | BCA/performance standard  | Appellate Body Reports  |
|---|---|---|---|
| 'Like' products must be treated <b>equally</b> irrespective of origin ( <b>market-based test</b> )  | GATT Articles I, III<br>TBT Article 2.1 (applicable to performance standards only)  | <ul style="list-style-type: none"> <li>Does it negatively impact upon conditions of competition for imported products (<b>National Treatment</b>) or some countries versus others (<b>Most Favoured Nation</b>)?</li> </ul>   | <i>EC – Seal Products (2014)</i> , para. 5.78, 5.90 (GATT);<br><i>US-Clove Cigarettes (2011)</i> , paras. 179-180 (TBT Agreement).  |
| Differential treatment permitted if it pursues a <b>legitimate objective</b> / conforms with particular criteria ( <b>policy-based test</b> ) | GATT Article XX<br>TBT Articles 2.1, 2.2 (applicable to performance standards only) | <ul style="list-style-type: none"> <li>Is the regulatory goal itself important? (What are the risks of non-fulfillment?)</li> <li>Use of <b>international standards</b> encouraged (not mandatory).</li> <li>Is it the <b>least trade restrictive</b> way to achieve the regulatory objective?</li> <li>Is the regulation applied <b>even-handedly</b> to all trade partners?</li> <li>Has there been adequate <b>consultation/negotiation</b>?</li> <li>Does it seem to be a <b>rational</b> way of addressing the regulatory goal?</li> </ul> | <i>US-Shrimp (1998)</i> paras. 163-170 (GATT);<br><i>Korea-Beef (2001)</i> para. 164 (GATT).<br><i>US-Tuna II (2012)</i> paras. 297, 322, 313-14 (TBT Agreement);<br><i>EC-Seal Products (2014)</i> para. 5.306 (GATT). |

Table D.1 (above) is not comprehensive but sets out some key requirements set out in previous WTO disputes, and that will likely be relevant in a dispute about BCAs or

performance standards. WTO-compliance is a cross-cutting theme, and this table provides some context for our subsequent conclusions.

## 2. BCAs and product standards: common issues

### A. Scope

This section covers key design decisions:

- a) Which sectors/products will be covered by the trade measures?
- b) Which scope of emissions will be included?
- c) What methodology will be used for assessing embodied emissions?
- d) Will BCAs/standards be disapplied to reflect regulation in an imported good's country of origin?

These are not independent decisions: while it seems desirable that all products be subject to the same protocol as to which emissions are covered, the first two decisions – and the trade-offs they entail – are interdependent, and both are constrained and underpinned by the third – our ability to measure the selected emissions for the selected products. We separate these decisions here for the sake of simplifying the exposition. Finally, we examine how BCA prices or regulatory requirements that the UK imposes should respond to the existence of comparable requirements in the country of origin of an imported good.

#### I. Decisions

##### **Which sectors/products will be covered?**<sup>125</sup>

This particular analysis is limited to manufactured products, fuels and power. Within this, when determining product or sectoral coverage, it is first necessary to define the regulatory aim underpinning this choice: combatting carbon leakage in trade-exposed industries that are subject to an internal emissions trading scheme or equivalent (a narrowly focussed aim) or addressing consumption emissions (a broader/more ambitious aim).<sup>126</sup>

##### **Carbon leakage**

With respect to leakage, the existence of carbon pricing in the UK through the Emissions Trading Scheme (ETS) increases the costs of producing (certain) goods in the UK, inducing potential carbon leakage in both the UK market and the world market. In the former case, the issue is that domestic sales by UK producers may be displaced by imports that are cheaper but more carbon-intensive, leading a net increase in emissions arising from consumption in the UK; industries that are vulnerable are the high emitters with strong import competition. In the latter case, the issue is that, as their costs rise, UK firms may lose export sales and be displaced by more carbon-intensive sellers in overseas markets: these are the high emitters which have significant export activities. In each case the change in

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<sup>125</sup> While this section pertains equally to BCAs or equivalent standards regimes, for shorthand we will generally just refer to BCAs.

<sup>126</sup> We often refer to sectors included in the domestic policy as 'priced' – i.e. their carbon is priced.

trade pattern may be accompanied by or emerge from the relocation of industries from the UK to more forgiving sites abroad.

Seen from a business perspective, carbon leakage is a matter of competitiveness – the ETS makes UK business more expensive. While concerns about UK domestic production and UK export markets refer to the same phenomenon, they are not identical in terms of their scope, the trade-offs in public policy they imply or the international legality of any resulting policies (see discussion of export rebates below).<sup>127</sup>

We start from the EU Emissions Trading Scheme (ETS), which the UK itself was instrumental in developing when it was a member.<sup>128</sup> This requires EU/UK producers in high emitting industries to submit carbon credits for each unit of emissions from their regulated activity, where the carbon credits have to be purchased on an open market or (for now) be provided as ‘free allowances’ within the ETS.<sup>129</sup> The total number of credits is capped by policy, rendering their price positive when they are traded and hence adding to the affected firms’ production costs within the EU/UK.

The EU also developed simple criteria for deciding which sectors within the ETS were vulnerable to carbon leakage and used these as a means to determine which sectors warranted free allowances of credits in order to mitigate (remove some of) the cost implications of the ETS. The EU criteria are not uncontroversial<sup>130</sup>, but exposure to leakage has to be defined somehow, and this is not a discussion we get into here. Rather, we observe that there are several lists of vulnerable sectors extant and they substantially overlap. Table D.2 (below) reports three such lists they are derived in different ways and use different classifications and so are only broadly comparable.

Taking the lists of sectors/products vulnerable to carbon leakage as given, the question arises of whether they can all be included under a BCA or equivalent standards regime, or whether practical or other considerations might mandate that the list be reduced in some way. If all emissions could be easily and fairly included in a climate border policy, optimal policy would appear to be to include them all. However, as well as practicality, there may also be negotiating reasons and/or long-standing and systemic reservations or constraints on that position. The former are essentially matters of diplomacy and cannot be analysed until the outlines of the schemes adopted here and elsewhere are clear. The latter may include factors such as whether inclusion stimulates the optimal level of innovation in the long-term or whether accommodating to existing WTO requirements in order to help to preserve the WTO itself is actually the right policy.

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<sup>127</sup> Vivid Economics, [UK Business Competitiveness and the Role of Carbon Pricing](#) (2020) offers a useful discussion of the competitiveness perspective

<sup>128</sup> BEIS, [Participating in the UK ETS](#) (Feb 2022).

<sup>129</sup> Note that having free permits does not necessarily exclude firms’ rights to purchase more pollution permits.

<sup>130</sup> R Martin et al, Industry compensation under relocation risk: a firm-level analysis of the EU emissions trading scheme (2014) 104(8) American Economic Review 2482.

Table D.2 Three lists of sectors vulnerable to carbon leakage

| Jensen et al (2021) <sup>131</sup>   | EU Commission (2021) <sup>132</sup>       | Energy Systems Catapult (2020) <sup>133</sup> |
|--|---|---|
| In order of decreasing free allowances in UK ETS                             | In order of decreasing total EU emissions | Order unspecified                             |
| Iron and Steel   | Iron and Steel                            | Refineries                                    |
| Coke and ref. petroleum  | Refineries                                | Chemicals                                     |
| Cement, lime, plaster a.o.   | Cement                                    | Iron and steel                                |
| Crude petroleum and natural gas  | Organic basic chemicals                   | Cement and lime                               |
| Industrial gases, inorganics and fertilisers                                 | Fertilisers                               | Paper, pulp, and printing                     |
| Petrochemicals   | Pulp and paper                            | Rubber and plastics                           |
| Glass, porcelain a.o.  | Lime and plaster                          | Glass and ceramics                            |
| Paper and paper products   | Inorganic Chemicals                       | Textiles                                      |
| Other food products  | Glass                                     | Wood  |
| Gas; distribution of gaseous fuels through mains and steam, air cond. supply | Aluminium                                 |   |
|  | Ceramics                                  |   |
|  | Polymers                                  |   |

The obvious starting point for considering the scope of a BCA to curtail carbon leakage is the set of sectors that have been subject to free allowances under the UK ETS. Free allowances compensate ETS prices for direct emissions and are supplemented by compensation for indirect costs (electricity) where these constitute more than 5% of their Gross Value Added (GVA).<sup>134</sup> A BCA requires the conversion of the domestic ETS charge on producers/installations to a charge or standard applied to imported products, while simultaneously maintaining some symmetry of treatment. This is also the basic approach that the EU is pursuing.

Even within this relatively constrained starting point, the choice of sectoral coverage is not entirely self-evident. The trade-off in defining the scope of the carbon leakage element of a BCA is relatively simple to state – a clear, legally unassailable, identification of emission-intensity vs. administrative complexity and methodological uncertainty that could mire the BCA in domestic and international dispute.

The more limited the scope of sectoral coverage, the easier and indeed more feasible, is a BCA or performance standard to implement. Past WTO disputes on environmental and animal welfare regulation underscore the importance of a strong regulatory rationale, and a

<sup>131</sup> C Jensen, M Gasiorek & E Lydgate, [UK policy on carbon leakage](#) (UK Trade Policy Observatory, Dec 2021).

<sup>132</sup> European Commission, [Impact Assessment Report](#) SWD(2021) 643, Annex 7.

<sup>133</sup> Energy Systems Catapult, [Industrial Decarbonisation: Net Zero Carbon Policies to Mitigate Carbon Leakage and Competitiveness Impacts](#) (2020).

<sup>134</sup> BEIS, [Compensation for the indirect costs of the UK ETS and the CPS mechanism: guidance for applicants](#) (Apr 2022).

clear means-ends relationship between a trade-restrictive regulation and its goal.<sup>135</sup> As a result, a number of WTO legal analyses conclude that limiting BCA to few, trade-exposed primary commodities will be the most likely way to survive challenge in the WTO under GATT Article XX, which requires strong evidence that the measure supports environmental, rather than industry, objectives.<sup>136</sup> Selecting sectors in which there is the strongest existing evidence base for leakage is more robust than extending to a) sectors where risk of leakage is less well established or b) downstream manufactured goods, where measuring embodied emissions is so complex that methodologies or their results become more vulnerable to challenge.

Establishing an evidence base for leakage is a difficult problem in itself. If widespread leakage can be 'proved', arguably it is too late to mitigate. Thus the Commission has framed the EU's CBAM objective as addressing the 'risk of leakage'.<sup>137</sup> An array of academic publications examine the extent of current leakage and degree of risk of future leakage and a full analysis of this issue lies beyond the scope of this report. In broad overview, there is no clear consensus about the extent of the risk, but it does seem clear that it increases with higher domestic carbon pricing; clearly, the upward trajectory of the ETS price increases the likelihood that leakage will occur in the future.<sup>138</sup> The question of how to establish a clear environmental rationale for CBAM is a tricky one because some uncertainty about the extent of the risk seems unavoidable. Further, there are competing arguments over whether BCA should be extended to manufactured products in order to increase its effectiveness. This is connected to the question of which emissions to include under a BCA, to which we come later.

In this context, the design decisions that must be taken are extremely complex and vary from product to product. They are discussed intelligently and in some detail by the European Commission in Technical Annex 7 of the Impact Assessment of the CBAM.<sup>139</sup> While the UK may wish/need to adjust some of the details, the basic analytical approach adopted by the Commission seems to be an inevitable part of implementing a BCA. As noted, it starts from the criteria for including a sector in the ETS and the vulnerability to carbon leakage, and it then moves on to consider the more practical aspects of implementation.

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<sup>135</sup> As examined in E Lydgate, [Is it Rational and Consistent? The WTO's Surprising Role in Shaping Domestic Public Policy](#) (2017) 21(2) *Journal of International Economic Law* 1.

<sup>136</sup> See for example, M Mehling et al, [Designing Border Carbon Adjustments for Enhanced Climate Action](#) (2019) 113(3) *American Journal of International Law* 43; A Marcu, M Mehling and A Cosbey, [Border Carbon Adjustments in the EU: Issues and Options](#) (Oct 2020); R Leal-Arcas, [A Legal Exploration of the European Union's Carbon Border Adjustment Mechanism](#) (2022) *Indian Journal of International Economic Law*.

<sup>137</sup> See for example, the Commission's July 2021 proposal.

<sup>138</sup> See for example, M Muuls et al, [Does Pricing Carbon Mitigate Climate Change? Firm-Level Evidence from the European Union Emissions Trading Scheme](#) (2022) CEPR Discussion Paper No. 16982; F Misch and P Wingender, [Revisiting Carbon Leakage](#) (2021) IMF Working Paper 21/207; M Sakai and J Barrett, [Border carbon adjustments: Addressing emissions embodied in trade](#) (2016) 92 *Energy Policy* 102.

<sup>139</sup> European Commission, [Impact Assessment Report](#) SWD(2021) 643, Annex 7.

A key difference between the EU and UK proposals is the former's exclusion of oil and gas. The Commission concludes that this is due to 'technical constraints' as it is too difficult to 'unambiguously assign GHG emissions to individual output products'. It also cites the structure of the EU ETS pricing mechanism, which provides benchmarks for all refinery output, rather than product-specific outputs for gasoline, diesel or kerosene.<sup>140</sup> The very high ranking in vulnerability to leakage in both the EU and UK, as set out in the tables above, would suggest a strong argument for the inclusion of oil and gas, but these added methodological difficulties should be noted. Further, the large-scale production of oil and gas arguably has no place in a net zero world, such that the trajectory of these products will ultimately be toward elimination, rather than the introduction of greener production methods.

### **Consumption emissions**

In addition to carbon leakage, trade policy also offers instruments to abate 'consumption emissions' – the discouragement of the consumption of high-emitting products (in either production or use). The Climate Change Committee estimated that 46% of the UK's consumption emissions took place outside UK territory in their last reporting period.<sup>141</sup> If domestic UK emissions are simply being displaced to other countries, this arguably undermines the UK's fulfilment of its net zero target, which is largely domestically focused. While there is no firm dividing line between concerns about leakage and concerns about consumption emissions, the former are focused on the *displacement* of production emissions to other countries, as a direct result of UK climate policies. The latter are defined more broadly and concern the UK's overall *consumption footprint*.

For the purposes of this analysis, we assume that the UK will maintain its existing ETS scheme in the immediate future. Thus the first part of the analysis above, on leakage, focuses primarily on BCAs on the basis that this appears to be the most likely/feasible regulatory response to concerns about core sectors most exposed to ETS-induced leakage.

On the other hand, such an approach may not be seen as adequate to address the wider problem of UK global consumption and the emissions that it drives. The UK might wish to supplement BCA with performance standards or consumption (excise) taxes that address broader emissions. As examples of the former, the UK currently exempts small emitters from the ETS scheme, but might wish to introduce performance standards to cover these emitters. Alternatively, it might introduce embodied emissions requirements for a wide range of manufactured products, such as household appliances, electronic devices or automobiles. The broader scope of such regulation – going beyond precisely measured emission-intensity – can extend beyond the sectoral coverage of the ETS system and so would offer an additional tool in tackling consumption emissions.

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<sup>140</sup> European Commission, [Impact Assessment Report](#) SWD(2021) 643, Recital 33.

<sup>141</sup> Climate Change Committee, [Reducing UK emissions: 2020 Progress Report to Parliament](#) (June 2020).

On excise taxes, where a product is unavoidably emissions intensive, government may wish to discourage its use. For example, UK fuel duty regulations distinguish diesel from biodiesel and may seek to influence consumption emissions by taxing the former more heavily.<sup>142</sup>

While we discuss these options, and trade-offs, in more depth in the section on performance standards, one issue applies specifically with respect to sector/product scope. This is the fact that, as we discuss in more detail below, assessing embodied emissions for manufactured goods remains complex. Thus there is a clear trade-off between environmental ambition (in addressing a larger range of consumption emissions) and technical complexity.

Standards relating to actual emissions or preferred manufacturing techniques rest on process distinctions. While extending process-based regulation to imported products is unpopular with many WTO members, there is no provision in WTO case law or treaty preventing countries from imposing such requirements on one another, as long as they have a strong consistent policy justification and are matched by requirements on domestic producers.

BCA calculations also rest on process-based regulatory distinctions, so this issue is not unique to product standards. However, the *complexity* of assessing and applying embodied emissions, particularly for manufactured goods, makes diplomatic and legal challenges more likely, as assessing and verifying such emissions in other countries will prove difficult. Such product standards will likely become somewhat easier to apply as international standards on embodied emissions gain more prominence, methodologies evolve and their application becomes more widespread.

Another key element of product standards is determining how one defines the emissions ‘limit’ set by a product standard. This is partly a methodological question (how to assess embodied emissions accurately) but also a question of calibration. Undoubtedly, this will be a subject of discussion in the GASSA and G7 climate clubs discussions. We address some of the issues in the section on product standards.

## II. Options for product coverage

Bearing in mind that the final decisions on product coverage depend on the coverage of emissions and the methodologies available to measure embodied carbon, we offer now a brief scoring of options for product coverage. The options we consider on product coverage are (roughly in order of increasing environmental ambition):

1. Five sectors at risk of leakage: iron and steel, cement, fertiliser, aluminium and electricity (mirroring the EU CBAM);

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<sup>142</sup> To be clear, we are not entering the debate about whether to discriminate in this way, but merely noting an example where it would be straightforward to do so.



2. Six sectors identified as most at risk of leakage in UK (UKTPO analysis): oil and gas (including coke, petroleum, natural gas, petrochemicals and gas), iron and steel, cement, fertiliser, glass and paper;
3. Six sectors identified as most at risk of leakage, plus downstream products containing these inputs;
4. A broader approach which addresses consumption emissions for non-ETS priced sectors through excise tax or standards that apply to both domestic and foreign suppliers; and
5. A broader approach which addresses consumption emissions for non-ETS priced sectors through excise tax or standards that apply only to foreign suppliers.

Table D.3 Product coverage options: summary table and key

### Scope of sector/product coverage against goals

|   | Environmental |        | Technical feasibility |        | Equity: international |        |        | Equity: domestic costs |        |
|---|---------------|--------|-----------------------|--------|-----------------------|--------|--------|------------------------|--------|
|   | (i)           | (ii)   | (iii)                 | (iv)   | (v)                   | (vi)   | (vii)  | (viii)                 | (ix)   |
| 5 sectors most at risk of leakage excluding oil and gas (mirror EU CBAM)            | Orange        | Orange | Yellow                | Yellow | Yellow                | Green  | Yellow | Yellow                 | Green  |
| 6 sectors most at risk of leakage including oil and gas                             | Yellow        | Orange | Yellow                | Yellow | Yellow                | Green  | Yellow | Yellow                 | Green  |
| 6 sectors most at risk of leakage including oil and gas + downstream products       | Green         | Yellow | Orange                | Orange | Yellow                | Yellow | Orange | Orange                 | Green  |
| Performance standards on non-priced sectors (with comparable domestic standards)    | Green         | Green  | Yellow                | Yellow | Yellow                | Yellow | Yellow | Yellow                 | Yellow |
| Performance standards on non-priced sectors (without comparable domestic standards) | Green         | Green  | Yellow                | Yellow | Orange                | Orange | Yellow | Yellow                 | Green  |

| GOALS  |   |
|--|---|
| <b>Environmental goals</b>                               | <b>Equity goals: international</b>                            |
| i Addresses risk of carbon leakage                       | v WTO legality: treats products evenly (market-based tests)   |
| ii Addresses consumption emissions more broadly          | vi WTO legality: Environmental coherence (policy-based tests) |
|  | vii Developing countries (CBDR-RC)                            |
| <b>Technical feasibility goals</b>                       | <b>Equity goals: domestic costs</b>                           |
| iii Complexity for exporters to UK, or importers into UK | viii Cost to UK consumer                                      |
| iv Compliance assessment (for government/verifiers)      | ix Cost/difficulty for competing UK firms                     |
| <b>ASSESSMENT</b>  | <b>Meets goal</b>   |
| More effective, but some concerns                        | Less effective in meeting goal                                |
| Ineffective in meeting goal                              | Not applicable  |

### III. Options for emissions coverage

#### Which emissions will be included?



This decision is simply stated in the title, and the options are similarly simply stated. These may include:

1. Scope 1. Direct emissions, which take place as part of the production process (e.g.heating and cooling).
2. Scope 2. Indirect emissions from the production of electricity consumed in production process.
3. Scope 3. Other indirect emissions upstream, which includes emissions from mining raw materials, their production process, transport of raw materials, those embodied in purchased inputs, emissions during the use of a product and emissions from its disposal / end-of-life. This could extend to a full lifecycle analysis (a ‘cradle to grave’ approach). The most immediate decision facing the EU and the UK is whether to include the emissions embodied in the inputs into products included in a BCA.

The contribution of these types of emissions to overall emissions varies between sectors, and a full sector-by-sector analysis falls beyond the scope of this report. Table D.6 (below) provides a summary of these options against cost, complexity and feasibility, which is further elaborated in the following.

*Table D.4 Summary of options for emissions coverage against cost, complexity and feasibility*

|                    | <b>Scope 1 (direct emissions)</b> | <b>Scope 2 (indirect emissions)</b> | <b>Scope 3 (supply chain etc)</b> |
|--------------------|-----------------------------------|-------------------------------------|-----------------------------------|
| <b>Cost</b>        | Significant                       | Slightly higher                     | Much higher                       |
| <b>Complexity</b>  | Significant                       | Slightly more                       | Vastly more                       |
| <b>Feasibility</b> | Challenging                       | Very challenging                    | Not yet possible?                 |

Clearly, limiting a BCA to direct emissions makes implementation more feasible, but including indirect emissions would more accurately mirror UK domestic support for industries at risk of leakage through free allowances and other price supports, and thus may be necessary to prevent leakage when these supports are withdrawn. Further, neglecting to include indirect emissions risks diluting the effect of the BCA as firms introduce artificial steps in the value chain to move the heavy emissions just beyond the boundary of inclusion.

Scope 3 emissions fall beyond the reach of the UK ETS, so we assume them to be out of scope for a BCA or product standard on embodied emissions for now. Moreover, the difficulty taking into account emissions during the use of a product is that one has to assume a standard usage. For example, the environmentally optimal decision of whether to buy a car that is expensive to make (in emission terms) but cheap to run or one that is cheap to make and expensive to run would depend on expected usage. However, if carbon in the making and the using of the car were equally priced, one could rely on consumers to make the correct decision themselves.

On considering whether to bring lifecycle costs within scope of the ETS/BCA, as we just noted, if emissions were managed in all activities, the market could broadly be relied on to guide users towards ‘lifecycle emission-efficient’ products. However, if they are not (which

to date seems the more likely), then the market may be managed for the products themselves. This is done in some sectors via product regulations on energy efficiency or recycling, but it is not inconceivable that this is moved to the price domain by taxing products that use large amounts of (unregulated) carbon. In this case, the tax will need to apply to both domestic and imported varieties. This issue may be revisited if the UK extends its ETS, for example to cover transport emissions, as the EU has proposed.

The measurement of embodied emissions – either in fact or to create default values – becomes materially more complex with each stage of the value chain (see further the section on methodology below). This introduces uncertainty and also administrative costs for the producers, the importers, the verifiers and the authorities. Thus, the Commission suggests that the EU CBAM is likely to have to be limited to early stages of the value chain, which they refer to as basic materials and basic material products. However, the implied failure to advance very far into the realm of manufacturing opens up a significant danger of carbon leakage: firms can choose to carry out sufficient operations abroad that the resulting output lies outside the scope of the BCA, so rendering the whole of the good's value exempt from the BCA.

Annex 7 of the Commission's proposal discusses several sectoral examples of the complexity induced by multi-stage value chains. It also illustrates the complexity of the task of defining the scope of a BCA by two large tables on pp76-82 and pp84-89 of the Annex. The Commission suggests that it may be wise to start the BCA with only a critical subset of the ETS sectors. Although even this involves a trade-off: some of the objections to a BCA will be in principle (including those arising in the WTO), and neither they nor the overhead effort of designing the system will be worth enduring unless the coverage is (at least eventually) sufficient to make a material difference to emissions.

Some in the European Parliament have contested the Commission's proposed limitations on scope on the basis that neglecting downstream manufactured products will be fatal to combatting leakage. MEP Luis Garicano, from the Parliament's Committee on Economic and Monetary Affairs, argues that:

'...one can realise that if the CBAM were only to cover a subset of basic materials covered by the EU ETS... there would be a strong risk of generating distortions and substitution effects among sectors within the EU domestic market, with potentially irreversible damage.'<sup>143</sup>

The UK must face all these dilemmas when designing its border policies.

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<sup>143</sup> L Garicano, [Towards a feasible Carbon Border Adjustment Mechanism: Explanation and analysis of the European Parliament's Proposal](#) (2020), p11

Table D.5 Emissions coverage options: summary table and key

Scope of emissions covered against goals

|  | Environmental |      | Technical feasibility |        | Equity: international |        |       | Equity: domestic costs |      |
|--|---------------|------|-----------------------|--------|-----------------------|--------|-------|------------------------|------|
|  | (i)           | (ii) | (iii)                 | (iv)   | (v)                   | (vi)   | (vii) | (viii)                 | (ix) |
| Scope 1 Direct emissions   | Orange        | Grey | Yellow                | Yellow | Yellow                | Yellow | Grey  | Yellow                 | Grey |
| Scope 1+2 Direct and indirect-electricity emissions  | Yellow        | Grey | Orange                | Orange | Orange                | Yellow | Grey  | Yellow                 | Grey |
| Scope 1-3 Direct, indirect-electricity and indirect-other inputs, possibly up to lifecycle | Green         | Grey | Red                   | Red    | Red                   | Yellow | Grey  | Orange                 | Grey |

| GOALS  |   |
|--|---|
| <b>Environmental goals</b>                               | <b>Equity goals: international</b>                            |
| i Addresses risk of carbon leakage                       | v WTO legality: treats products evenly (market-based tests)   |
| ii Addresses consumption emissions more broadly          | vi WTO legality: Environmental coherence (policy-based tests) |
|  | vii Developing countries (CBDR-RC)                            |
| <b>Technical feasibility goals</b>                       | <b>Equity goals: domestic costs</b>                           |
| iii Complexity for exporters to UK, or importers into UK | viii Cost to UK consumer                                      |
| Iv Compliance assessment (for government/verifiers)      | ix Cost/difficulty for competing UK firms                     |
| <b>ASSESSMENT</b>  | <b>Meets goal</b>   |
| <b>More effective, but some concerns</b>                 | <b>Less effective in meeting goal</b>                         |
| <b>Ineffective in meeting goal</b>                       | <b>Not applicable</b>   |

IV. Methodology

There are implicitly options at stake in decisions about methodology, but they are detailed, more continuous than discrete, and ultimately they are merely inputs into the decisions that we have already discussed over the coverage of products and emissions. Globally there is a growing body of standards for carbon accounting but there is not a single universally recognised approach. At a company level the ideal is that carbon accounting should be like other good accounting practices.

Table D.6 Decisions about methodology

|                 |  |
|-----------------|--|
| Comprehensive   | Incorporates Scope 1, 2, and 3 emissions.                                      |
| Periodic        | Enables updates at regular intervals and comparisons across reporting periods. |
| Auditable       | Traces transactions and enables independent reviews for compliance.            |
| Flexible        | Incorporates data from multiple approaches to life cycle analysis.             |
| Standards-based | Accommodates existing generally accepted standards and emerging standards.     |
| Scalable        | Accommodates growing volume and complexity of business operations.             |
| Efficient       | Delivers data in the timeframe required for decision making.                   |

The UK is a relatively small market in global terms so defining our own carbon accounting methodology and expecting firms to comply properly with it would impose a considerable cost on business and this will be passed on to consumers. Wherever possible the UK should follow a methodology used or likely to be adopted by our major trading partners. In some cases, this will not be fully developed yet. This is a compelling case for international collaboration.

As the Volkswagen diesel emissions debacle demonstrated, the detail of the methodology for measuring carbon emissions, and precisely how it is applied, matter. Removing ambiguity and scope for gaming/cheating is desirable but difficult. As with a standards-based system, clarity and expertise are vital, as is an auditing capability. Wide coverage and complex systems will be harder and more expensive to implement.

The classical problem in economics when it comes to regulating externalities is that the optimal intervention requires exact information on the size of the problem, ideally from a damage perspective (i.e. the amount of pollution, or in this case the amount of CO<sub>2</sub> emissions, and the monetary value of the damage it causes). One challenge is that the almost inevitable “asymmetry of information between the polluter and the regulator is often regarded as an objection to any form of government intervention.”<sup>144</sup> Hence BCA regulations need both to overcome the informational problems and also to justify the costs of collecting information to society. In the case of CO<sub>2</sub> emissions, we do not know the damage function at all precisely, but since all CO<sub>2</sub> has the same cost, one need only focus on the relative carbon-intensity of different activities or products, which is the aim of the ETS/BCA regulations.

The measurement of emissions for the BCA starts from the ETS regulation, which is based on the emissions of the firms included in it. It does not have to concern itself with products, but once you move to product-based emissions as required by a BCA, the identification of process benchmarks becomes necessary. These associate industrial processes with particular outputs and are highly sector specific. They appear, however, to be sector (or world) averages, although they could be used as a base from which specific firms may claim to be exceptional.

From these process benchmarks, BCA product benchmarks can be developed as follows:

1. For products with only one stage of production, it is (conceptually) easy to use the process benchmarks to identify the energy use and hence CO<sub>2</sub> emissions per unit of product produced. The unit can be whatever characteristic of the product one wishes so long as it is tightly linked to emissions or, indeed, it can be a pre-specified combination of characteristics.<sup>145</sup> These are Scope 1 emissions.

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<sup>144</sup> D Pearce and R Turner, *Economics of natural resources and the environment* (Johns Hopkins University Press 1990), p85.

<sup>145</sup> In national accounting exercises it is natural to measure emissions per pound (or Euro) of gross value-added (GVA). Indeed, if the objective is to maximise value-added per pound of GVA, it is essential. It is not essential, however, in the industrial/trade exercises we are considering.

2. If the production process uses electricity (possibly as a direct substitute for hydrocarbons), the emissions intensity of that electricity needs to be calculated – Scope 2. This is more complex if electricity is purchased from a grid and typically relies on the national mix of generation techniques. With sufficient information, it can be modified to refer to local grids. If firms produce their own power, this can be translated to product level emissions via the process benchmarks.
3. Finally, the most direct element of Scope 3 emissions – those embodied in the (non-electricity) purchased inputs into the process – can be included so far as practical. This is done by asking for each unit of the target product, how much of each input is used and then, from the production processes for those products, how much carbon is embodied in them. If the inputs themselves use purchased inputs, one can iterate this process back until one has just the direct and electricity-based indirect emissions of the component basic materials.

Recognising that products may have many purchased inputs and each of those in turn has many inputs, and also that inputs are not necessarily used in identical proportions in all factories producing a product, it is easy to see why pursuing embodied carbon down the value chain can rapidly become too complex and costly.

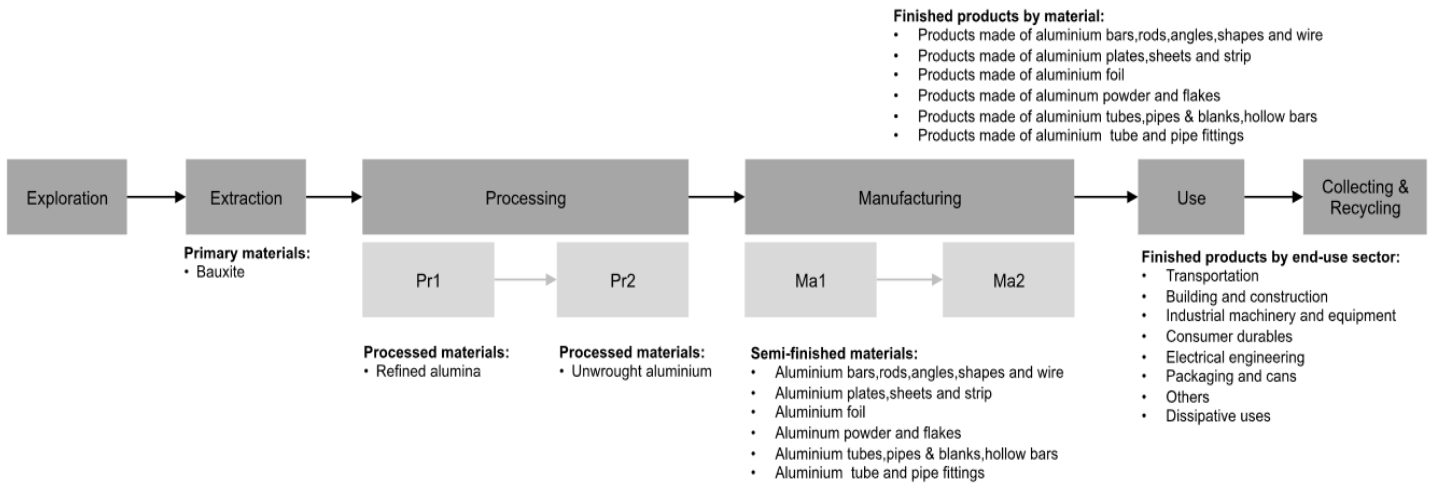
The importance of understanding the value chain and locating the BCA at the right point in it can be visualised in Figure D.2, showing the value-added chain of aluminium and related downstream goods. The approach suggested by the Commission identifies Pr1 as a simple good that contains only direct emissions. Calculating emissions is simple.

Pr2 is a more complex good that embodies the emissions at the value-added stage Pr2 in addition to those that happened at the preceding stage. In the aluminium case, it is vital that as a minimum Pr1 is covered because it is this early stage of the value-added process (sourcing alumina and converting to aluminium) that is so energy intensive.<sup>146</sup> Hence if the BCA is applied either after Pr1 and before Pr2 or after Pr2, as long as emissions in Pr1 are captured, the regulation can be deemed comprehensive enough for that industry even if Pr2 is the point of entry into the EU.

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<sup>146</sup> See F Passarini, L Ciacci, P Nuss and S Manfredi, [Material flow analysis of aluminium, copper, and iron in the EU-28](#) (2019).

Figure D.2: The value-added stages for aluminium products<sup>147</sup>



For products at later stages of the value chain, however, it may be more difficult to capture the emissions embedded from Pr1 because they will become relatively smaller shares of the total value and pass through many ‘hands’ which may not be able to keep precise records. Thus, as raw materials move on into different value-added chains, the embodied emissions may escape accounting. Cars are one of many goods that contain aluminium. The practicalities of imposing a tax on complex products with thousands of components are exceptionally onerous. In the case of a car, there are thousands of components each of which would need to be carbon audited. Additionally at any one time, manufacturers typically source components from more than one country, so two identical looking cars might have quite different carbon costs. This is because components from different countries will have led to different carbon emissions.

Taking a car alternator as an example, it may come from France and be made using electricity from nuclear power and French or German metals (each of which would have a different carbon emissions) or it may be from Turkey which has less renewable electricity generation and a completely different set of suppliers. If there is an appetite to tax imports of components many practical issues emerge, for example it might be possible to tax major components but not smaller ones. This may lead to some unexpected outcomes. The largest source of emissions in a single car component is battery packs for electric cars which may account for around 4 tonnes CO<sub>2</sub>e (with a typical electricity generation mix) or over 70% of the emissions generated making a mid-size petrol-fuelled car. As before the energy used in production will have a big impact on this figure.

The problem of carbon leakage can therefore still occur with a BCA if it gives importers an incentive to distance the emissions intensive parts of the value-added chain further back from the home market (backwards disintegration). One practical example could be that UK

<sup>147</sup> Ibid.

carmakers currently import aluminium that goes into value-added stages of producing car parts. If BCAs are applied on raw commodities but not components there will be a distortionary impact. Imports of bulk materials will become more expensive and finished goods will not. That makes UK producers who import and process basic commodities less competitive, so it will have an impact on their profitability and employment.

How much of an impact will vary considerably between sectors, for example if a UK car manufacturer imports steel or aluminium and a BCA is applied, production becomes more expensive, but if they import components made from those products their prices would not increase if the latter were not taxed. With the BCA there could be an incentive to backward disintegrate these parts of the value chain to markets outside the UK and thereby offshore most or additional parts of the industry besides those that are already offshored. Such concerns could be raised for most industries that use aluminium inputs intensively in their production parts and if such embodied emissions are not tracked at a high level of detail.

### **Summary of key considerations for methodological approach**

In practical terms, the process of moving from the ETS to import requirements is complex. The same issues arise for the application of embodied emissions product standards. The EU ETS is defined at a sectoral level (NACE), along with identifiable industrial processes for which benchmark emissions can be established. From the latter the EU moves to products via the product classification PRODCOM and from there to the customs CN classification. Because the BCA is implemented through legal instruments operated at the border, there is no alternative to having a precise definition of what is covered and how many BCA certificates (carbon certificates) must be surrendered to import it. The steps involved introduce a series of filters which narrow down the set of products that can realistically be covered by a BCA:

- (i) the industrial process benchmarks must exist (where they do not, the implication is generally that the process is too complex – and often too far down the value chain – for embodied emissions to be ascertained);
- (ii) this essentially says that effective methodologies to identify carbon directly embodied in products must be in place; this matters not only for the firms that produce products but also for the verifiers of that information and the authorities who ultimately enforce them;
- (iii) the product in question must be precisely definable, its existence linked confidently back to one of the benchmarked processes; it must also be unambiguously identifiable at the border for customs control and enumeration; and
- (iv) the product must be traceable from the internal product code to the customs classification.<sup>148</sup>

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<sup>148</sup> Specific application of these rules is plain in the preamble to the EU legislation on the CBAM, which states: (31) *However, certain sectors listed in Commission Delegated Decision (EU) 2019/708 should not at this stage be addressed in this Regulation, due to their particular characteristics.*

Failure at any point along this chain would decouple the border measures from the emissions data and open a BCA up to challenge on the grounds of discrimination (see further discussion of criteria for non-discrimination analysis in the following section).

The Commission's Annex 7 concludes on scope that:

*'... for all the options it is important that the administrative burden of the CBAM must be balanced against the achievable results. For reasons of avoiding carbon leakage risks in value chains in the EU, some options [should] consider also basic materials as part of semi-finished or even manufactured products, while for practical reasons the focus on basic materials is usually to be preferred. Furthermore, it is important from a practical perspective that products covered can be clearly identified and distinguished. For options which require or allow the use of actual emission intensity levels, robust and feasible rules for monitoring, reporting and verification are required. Finally, it is essential that an appropriate default value for the emission intensity level of the materials or products included can be defined.'*

The Commission's methodological concerns beset any border policy based on actual emissions, whether this be on the actual emissions of the transaction under consideration or a broader set of transactions such as would be needed to build up reliable estimates of sectoral or national averages. The concerns do not pertain, however, to policies that are not based on claims of emission-measurement, subject only to the latter being non-discriminatory. Hence, as we argue below in the section on standards, circumventing measurement difficulties might provide a useful ad hoc justification for resorting to standards for domestic and imported products. Even then, however, if one is presenting a policy in terms of net zero, the link back to emissions has to be made in some form.

## V. Exemptions

On the exemption of charges or requirements based upon carbon pricing or equivalent regulation in the country of origin, the key decisions and options are summarised as follows:

- Decision: Should imported products be exempted from charges equivalent to domestic carbon prices that they pay, or based on the equivalent regulatory requirements that they face?

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(32) *In particular, organic chemicals are not included in the scope of this Regulation due to technical limitations that do not allow to clearly define the embedded emissions of imported goods. For these goods the applicable benchmark under the EU ETS is a basic parameter, which does not allow for an unambiguous allocation of emissions embedded in individual imported goods. A more targeted allocation to organic chemicals will require more data and analysis.*

(33) *Similar technical constraints apply to refinery products, for which it is not possible to unambiguously assign GHG emissions to individual output products. At the same time, the relevant benchmark in the EU ETS does not directly relate to specific products, such as gasoline, diesel or kerosene, but to all refinery output.*



- Options: Key options are whether products are exempted or not exempted. We discuss whether and how to exempt entire countries from BCA requirements below, but the question also arises on the level of individual products.

Exempting products from being double charged by taking into account the carbon price they have already paid domestically is necessary to achieve an equitable approach. Clearly, this exemption should not apply if producers receive export rebates for those costs. Somewhat counterintuitively, forgiving imports to the UK based on the price they have already paid may provoke challenge under the WTO Most Favoured Nation (MFN) principle, which requires equal treatment of all WTO Member States (subject to certain exceptions). Past WTO disputes show that compliance with MFN requirements is determined based upon whether a regulation in dispute ‘modifies the conditions of competition... to the detriment of... the group of [like] imported products’.<sup>149</sup> This determination would not take into account the UK policy objective because forgiving imports based on domestic climate policies could be characterised as granting ‘advantage, favour, privilege or immunity’ and not extended ‘immediately and unconditionally’ to like products from other WTO members.<sup>150</sup>

A failure to meet the conditions of the MFN principle would result in the UK defending BCA as an environmental measure under GATT Article XX, where the consistency of its approach with its policy objectives would be taken into account. In fact, exempting imports from carbon charges to the extent that they had already been paid at home would strengthen an Article XX defence. In exempting imports from charges based on domestic carbon pricing the UK would make clear that this is an environmental measure rather than an excuse to tax imports, and would certainly be seen as a crucial element of regulatory design by other countries/regions who require their producers to pay for emissions.

The salient observation is that conformity with the WTO MFN principle may simply not be possible with respect to this decision criterion. Ultimately, a UK BCA could be judged as not in conformity with market-based WTO non-discrimination tests, and still be compliant with WTO rules on the basis that it comprised an environmental exception. However, this is not a *carte blanche*: meeting the criteria to qualify as an exception requires that the BCA conform with particular design criteria. It must appear necessary to fulfil the UK’s stated

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<sup>149</sup> As explained by the Panel in *EC-Seal Products (2014)* (and affirmed by the Appellate Body): ‘Under the GATT 1994 the ‘treatment no less favourable’ standard prohibits WTO Members from modifying the conditions of competition in the marketplace to the detriment of the group of imported products vis-à-vis the group of domestic like products’. Panel Report, para. 7.585 (referring to Appellate Body Reports, *US – Clove Cigarettes*, paras. 180-182 and 215; and *US – Tuna II (Mexico)*, para. 215). Note however that GATT Articles I and III impose a strict, market-based test of ‘conditions of competition’ to determine whether discrimination has occurred, and any defence based on a policy justification for a measure must be considered under GATT Article XX, as an exception to the GATT. Under the TBT Agreement, in contrast, TBT Article 2.1 also takes into account whether there is a ‘legitimate regulatory distinction’, or policy justification, underlying differential treatment (as set out in *EC-Seal Products (2014)*, AB Report, paras. 5.117-5.122.) While the provisions have been interpreted differently, both involve a market-based assessment of impacts on conditions of competition followed by an assessment of the policy basis for any negative impacts.

<sup>150</sup> See GATT (1994) Art I(1).

environmental objectives (as opposed to a less trade-restrictive approach), and be applied in a way that is accessible and transparent to all trade partners.

An even trickier question, from a WTO-compliance perspective, is whether to exempt products on the basis that exporters have paid comparable costs in the form of regulatory measures, such as performance standards. This is not contemplated by the Commission’s July 2021 proposal, but forms an important part of the debate about exemption from charges on a country-level, which we discuss below. While the basic issue is binary, to exempt or not to exempt, within it are a large number of subsidiary questions, such as the extent and methodology for exemption, the basis for a ‘regulatory’ exemption, and whether the products receive export rebates, all of which have to be considered at a product/country level. Finally, it is important to note, that only the WTO Dispute Settlement Procedure can determine whether a policy is to be deemed consistent or inconsistent with UK obligations in the WTO.<sup>151</sup>

Table D.7 Exemptions based on carbon price in producing country against goals: summary table and key

**Exemption options mapped against goals**

|   | Environmental |      | Technical feasibility |        | Equity: international |        |       | Equity: domestic costs |        |
|---|---------------|------|-----------------------|--------|-----------------------|--------|-------|------------------------|--------|
|   | (i)           | (ii) | (iii)                 | (iv)   | (v)                   | (vi)   | (vii) | (viii)                 | (ix)   |
| Based on domestic pricing               | Green         | Grey | Yellow                | Yellow | Yellow                | Green  | Grey  | Yellow                 | Yellow |
| Based on comparable domestic regulation | Yellow        | Grey | Orange                | Orange | Yellow                | Yellow | Grey  | Yellow                 | Yellow |
| No exemption                            | Orange        | Grey | Yellow                | Yellow | Yellow                | Red    | Grey  | Yellow                 | Green  |

| GOALS  |   |
|--|---|
| <b>Environmental goals</b>                               | <b>Equity goals: international</b>                            |
| i Addresses risk of carbon leakage                       | v WTO legality: treats products evenly (market-based tests)   |
| ii Addresses consumption emissions more broadly          | vi WTO legality: Environmental coherence (policy-based tests) |
|  | vii Developing countries (CBDR-RC)                            |
| <b>Technical feasibility goals</b>                       | <b>Equity goals: domestic costs</b>                           |
| iii Complexity for exporters to UK, or importers into UK | viii Cost to UK consumer                                      |
| iv Compliance assessment (for government/verifiers)      | ix Cost/difficulty for competing UK firms                     |
| <b>ASSESSMENT</b>  | <b>Meets goal</b>   |
| More effective, but some concerns                        | Less effective in meeting goal                                |
| Ineffective in meeting goal                              | Not applicable  |

<sup>151</sup> The WTO’s DSP is hamstrung at the moment by the absence of judges on its Appellate Body (its equivalent of a Supreme Court), but its earlier stages still function and many countries have combined to create and commit themselves to abide by the Multiparty Interim Appeal Arbitration Arrangement (MPIA), which is seen as a substitute for the Appellate Body. The UK is currently not one of these countries.

## B. Developing countries

This section considers the applicability of potential UK regulation to developing countries.

### I. Decisions

**Will the UK exempt countries from BCA charges or emissions performance standards requirements for some developing countries? If so, which ones/on which basis?**

**If not, will it otherwise direct revenues or other forms of capacity building support to developing countries?**

Developing countries have less individual responsibility to mitigate climate change, as set out in the Paris Agreement's central principle of Common but Differentiated Responsibility and Respective Capacities (CBDR-RC). Thus, a major axis of controversy with respect to BCA proposals is whether, and how, to reflect these differing responsibilities. We outlined developing country objections to CBAM in Section B. These rest largely on the perception that extending the same pricing that EU or UK producers pay is inequitable and goes against the principle of CBDR-RC.<sup>152</sup>

Another set of concerns responds to the 'respective capacities' element of CBDR-RC. The set of regulatory requirements that accompany both BCAs or product standards are intensive and may be more difficult for developing country firms to apply. This might result in perverse environmental incentives. For example, developing country firms might rely on emissions baselines due to lack of capacity to calculate actual emissions, which would prevent lower-emission products from benefitting from lower fees and hence undermine incentives to improve emissions performance (these distinctions are discussed in the section on pricing benchmarks). Alternatively, firms simply might not export lower emissions products due to inability to complete the required steps.

There are options to redress these concerns and attempt a closer integration between BCAs or product standards and CBDR-RC. These include reducing, phasing in slowly, or even eliminating requirements for some countries. In exempting some countries based on their level of development, the Peters-Coons legislative proposal for BCAs applies this approach (though details are not fully defined).

On the face of it, exempting some countries seems to go against the WTO Most Favoured Nation principle, which requires equality of regulatory, tax and tariff treatment for WTO members. However, there is some scope for exemption of developing countries from BCAs under WTO rules using the Enabling Clause, which is already the basis on which developing countries receive preferential entry to developed country markets – schemes generally termed a Generalised System of Preferences (GSP).<sup>153</sup> The Enabling Clause permits WTO members to offer developing countries preferential market access on an autonomous basis,

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<sup>152</sup> For further discussion, see I Venzke and G Vidigal, Are Trade Measures to Tackle the Climate Crisis the End of Differentiated Responsibilities? The Case of the EU Carbon Border Adjustment Mechanism (CBAM) (2022) Amsterdam Law School Legal Studies Research Paper 02-2022.

<sup>153</sup> The UK will use the term 'Developing Countries Trading Scheme' when it revises its terms later this year.

through the reduction/removal of tariffs that are imposed on other countries. ‘Developing country’ status in the WTO is self-declared, and most WTO members claim it, but case law provides that donors can restrict the benefits to specific subsets of developing countries as long as the criteria for inclusion are reasonably transparent and objective.<sup>154</sup> The most obvious subset is the UN-agreed set of 47 least developed countries (LDCs) – more or less, but not precisely, the world’s poorest.

While it hasn’t been used in this way in the past, in the case of a BCA (and possibly of standards), the Enabling Clause could potentially be used to justify the exemption of LDCs from the need to submit (the standard number of) emission certificates to underpin their exports of BCA products to the UK. It might also be able to exempt them from minimum performance standards for emissions. This, of course, permits a degree of carbon leakage, but it is easily limited.

One feature of the EU’s (and hence the UK’s) GSP scheme (and those of the USA and Japan among others) is the so-called competitiveness clause whereby, when a recipient starts to export large amounts of a commodity under the GSP, it loses preferences for that product. The criteria for ‘large amounts’ vary, but they would allow the UK to limit the volume of leakage through this route on a country-by-country basis (i.e. preference loss would not have to be applied to all LDCs). LDCs have tiny economies and so even if the BCA product coverage extends far beyond the current EU list of candidates, this ‘loophole’ is unlikely to miss much carbon leakage. It might, however, make a lot of difference to the countries involved. One might wish to make the exemption temporary to encourage the LDCs to reduce their emissions, although that would be a long way into the future.

The UK could consider extending an exemption or reduction to more than the LDCs – say low and lower-middle income countries. These are still poor by western standards, but once they are included, the scope for significant leakage grows. A decision would have to be made as to where the cut-offs lay both by country and the degree of exemption.<sup>155</sup>

While it will not address developing country objections as directly, another way to offset their concerns is to redistribute revenues derived from BCAs, or climate finance more generally, to developing countries. The failure to deliver climate finance at the level agreed with developing countries is a point of contention<sup>156</sup>, and addressing this topic as part of discussions about the introduction of UK BCAs or product standards may help from a diplomatic perspective at least (see Section C). The UK can also consult with developing country trade partners to assess their level of capacity to implement BCAs, and help build

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<sup>154</sup> The case was DS246 EC-Tariff Preferences (2003-4). The WTO Secretariat’s summary states: “Granting different tariff preferences to products originating in different GSP beneficiaries is allowed under the term ‘non-discriminatory’ in footnote 3 to para. 2, provided that the relevant tariff preferences respond positively to a particular “development, financial or trade need” and are made available on the basis of an objective standard to “all beneficiaries that share that need”.

<sup>155</sup> Our analysis of this issue runs close to that of Sam Lowe, [The EU’s carbon border adjustment mechanism: How to make it work for developing countries](#) (Centre for European Reform 2021).

<sup>156</sup> E Area and P Loft, [COP26: Delivering on \\$100 billion climate finance](#) (House of Commons Library, Nov 2021).

capacity, i.e. through training and/or longer introduction timelines, to assist with implementation.

The scope of coverage is also particularly relevant here. While we do not undertake a full analysis of developing countries' exposure, the inclusion of oil and gas, or downstream manufactured products, would clearly implicate developing country exports more seriously than Commission's current list of sectors, as our table for Section 2A (Scope) reflects.<sup>157</sup>

## II. Options

We have divided potential responses to these concerns into several discrete options. These are by no means mutually exclusive, but they are characterised as alternatives to clarify the trade-offs at stake. We do not rank the option of exempting a larger range of developing countries than LDCs, on the basis that it would be more difficult to justify and also risk undermining the goal of preventing leakage. Options include:

1. Exempt LDCs from BCAs;
2. Exempt LDCs from mandatory minimum standards;
3. Do not exempt any country on basis of level of development;
4. Direct some or all of BCA revenues to developing countries; or
5. Offer capacity-building support for adoption.

Table D.8 Developing countries options: summary table and key

### Developing countries options mapped against goals

|   | Environmental |      | Technical feasibility |        | Equity: international   |        |        | Equity: domestic costs |        |
|---|---------------|------|-----------------------|--------|---|--------|--------|------------------------|--------|
|   | (i)           | (ii) | (iii)                 | (iv)   | (v)   | (vi)   | (vii)  | (viii)                 | (ix)   |
| Exempt LDCs from BCAs   | Yellow        | Grey | Green                 | Yellow | Yellow  | Yellow | Green  | Grey                   | Yellow |
| Exempt LDCs from mandatory minimum standards  | Yellow        | Grey | Green                 | Yellow | Yellow  | Yellow | Green  | Grey                   | Yellow |
| Do not exempt any country on basis of level of development                                    | Green         | Grey | Green                 | Green  | Green   | Green  | Orange | Grey                   | Green  |
| Direct some or all of BCA revenues to developing countries (or other climate finance)         | Green         | Grey | Green                 | Green  | Green   | Green  | Yellow | Grey                   | Green  |
| Offer capacity-building support for adoption of BCA and/or performance standards requirements | Green         | Grey | Green                 | Green  | Green   | Green  | Yellow | Grey                   | Green  |
| <b>GOALS</b>  |               |      |                       |        |   |        |        |                        |        |
| <b>Environmental goals</b>  |               |      |                       |        | <b>Equity goals: international</b>                            |        |        |                        |        |
| i Addresses risk of carbon leakage  |               |      |                       |        | v WTO legality: treats products evenly (market-based tests)   |        |        |                        |        |
| ii Addresses consumption emissions more broadly   |               |      |                       |        | vi WTO legality: Environmental coherence (policy-based tests) |        |        |                        |        |

<sup>157</sup> An analysis by IEEP suggests that, while Least Developed Countries are not, on the whole, hugely exposed to CBAM charges, there are some significant impacts, e.g. for aluminium, Mozambique will be more affected than China. IEEP et al, [What can Least Developed Countries and other climate vulnerable countries expect from the EU Carbon Border Adjustment Mechanism](#) (IEEP 2021).

|  |   |
|--|---|
|  | vii Developing countries (CBDR-RC)        |
| <b>Technical feasibility goals</b>                       | <b>Equity goals: domestic costs</b>       |
| iii Complexity for exporters to UK, or importers into UK | viii Cost to UK consumer                  |
| Iv Compliance assessment (for government/verifiers)      | ix Cost/difficulty for competing UK firms |
| <b>ASSESSMENT</b>  | <b>Meets goal</b>                         |
| <b>More effective, but some concerns</b>                 | <b>Less effective in meeting goal</b>     |
| <b>Ineffective in meeting goal</b>                       | <b>Not applicable</b>                     |

## C. Climate clubs

### I. Decision

#### **On what basis will countries be exempted from BCA charges and administrative requirements?**

The decision of whether, and how, to exempt countries from BCA charges and administrative requirements requires decisions about the interaction between charges and standards, and the question of whether the two can be seen as equivalent. The UK might decide to waive BCA fees from another country that does not price carbon domestically, on the basis that it has applied product standards to achieve decarbonisation that *de facto* impose similar costs. Therefore, we have categorised it as a cross-cutting, rather than BCA-specific, design issue.

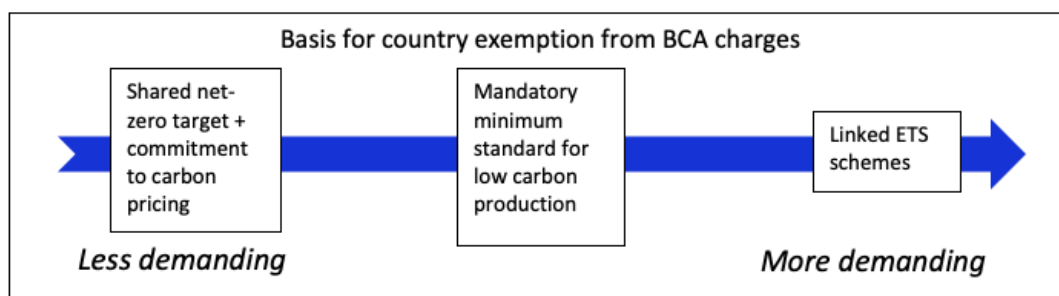
Country-based exemption from a BCA, if reciprocated, could form the basis of a so-called climate club. ‘Climate club’ is not a precisely defined term. Nordhaus conceived of it as a set of countries sharing the same carbon price (implicitly currently and into the indefinite future) and in which carbon pricing is the senior partner to regulation.<sup>158</sup> This definition permits different club members to use different routes to this price, although in truth different policies that produce the same price under one set of conditions, will almost certainly produce different prices under different circumstances, greatly complicating the operation of a ‘multi-instrument’ club.

From the perspective of UK trade partners, whether, and how, they can be exempted from a UK BCA on a country basis will be very important to the diplomatic reception to the proposal. There is no set approach to this. In theory, the UK could exempt other countries based on very loose criteria, such as shared net-zero targets, or very strict criteria, such as linked ETS schemes (noting that the former would very likely present difficulties from the perspective of WTO Most Favoured Nation requirements).

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<sup>158</sup> “The agreement envisioned here centers on an “international target carbon price” that is the focal provision of an international agreement. For example, countries might agree that each country will implement policies that produce a minimum domestic carbon price of \$25 per ton of carbon dioxide (CO2).” W Nordhaus, [Climate clubs: overcoming free-riding in international climate policy](#) (2015) 105(4) American Economic Review 1341, p1341.

Figure D.3 Country exemption from BCA charges



Within this spectrum, we highlight two potential approaches to illustrate trade-offs that arise from a stricter or a more relaxed set of criteria. The first option, linking ETS schemes, is the basis for climate clubs in the EU Commission proposal of July 2021. Within this analysis, we also examine the implications of formal linking UK and EU ETS schemes, which could form the basis of a UK-EU climate club (assuming the UK introduces BCAs), but also has impacts on CBAM regulation more broadly. The second option, mandatory minimum standards, draws inspiration from the GASSA.

While climate clubs are desirable in order to avoid the imposition of unnecessary trade barriers between countries that tax or regulate climate similarly, they are difficult to reconcile with the WTO Most Favoured Nation principle, which requires that all WTO Members be treated evenly with respect to tariffs, taxes and regulation. As a general rule, the less demanding the joining criteria, the more difficult to support the notion that some countries should be excluded from the club. The equivalence in pricing or regulatory approach that underpins a national exemption from a BCA will undergo scrutiny to ensure that it does not favour some trade partners over others. It is difficult to establish, objectively, that two separate regulatory regimes achieve outcomes that are precisely the same. This makes it easier for excluded countries to argue that they have been excluded unfairly.

In this respect, the EU approach of requiring formal ETS scheme linkage, while difficult, is more robust, as it makes clear that the EU will only entertain exemption when it is clear that regulatory objectives and instruments are comparable. This approach also finds support in academic literature; Leal-Arcas' analysis of WTO-compatible carbon clubs, for example, imagines that linked ETS schemes would form the basis of a climate club.<sup>159</sup>

## II. Options

Options include:

1. Linked ETS schemes; and

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<sup>159</sup> R Leal-Arcas, [A Legal Exploration of the European Union's Carbon Border Adjustment Mechanism](#) (2022) Indian Journal of International Economic Law.

## 2. Mandatory minimum standards.

### **Climate club model 1: Linked ETS schemes**

The EU Commission, in its CBAM proposal, requires countries to link to its ETS for exemption on a country-basis. Switzerland is the only country that has successfully linked an Emissions Trading Scheme with the EU, a process which notoriously took ten years (though this was the first linkage negotiation and the timeline is not necessarily indicative). The difficulties of merging national carbon pricing mechanisms stem from a number of sources, including the EU's need for a high degree of confidence in the institutional and regulatory basis of the ETS. The emergence, growth and development of other national/international carbon pricing regimes mean that other jurisdictions, including the UK, would need to satisfy themselves of these requirements before proceeding with a link. The approach thus defines a longer-term horizon for action which is probably incompatible with the urgency of achieving cooperation on embodied emissions.

As outlined above, linking the two ETS schemes would exempt the UK from all charges and administrative requirements of the EU CBAM. Thus a preliminary question is whether, as a matter of pragmatism rather than principle, the UK should pursue linked schemes. Under the Trade and Cooperation Agreement, the UK and EU agreed to 'give serious consideration to linking their respective carbon pricing systems in a way that preserves the integrity of these systems and provides for the possibility to increase their effectiveness.'<sup>160</sup> While formal linking is not a binding requirement, several forces would seem to push in that direction. Any linking of the UK and EU ETS is subject to negotiation and this therefore uncertain in terms of form, timing, and governance.

First, the administrative burden of having a similar but separate scheme in the UK is high. For example, firms selling in both the UK and the EU would need to prepare two lots of similar information but potentially with differences in measurement, reporting and verification procedures. On the public side, there would be less opportunity for sharing information, verification costs and analysis between the UK and EU authorities if they were operating to somewhat different models. Moreover, one cannot rule out the possibility that, as a small market, the UK is insufficiently attractive (profitable) for firms to go to the trouble of serving it.<sup>161</sup>

Second, the exemption of UK exports from the EU's CBAM will require that the UK have (very) similar carbon costs to the EU (strictly, not significantly below EU levels). And *mutatis mutandis*, what will be the UK tolerance for the EU having a lower price of credits than the UK so far as its imports from the EU are concerned? So far, the prices of credits have been

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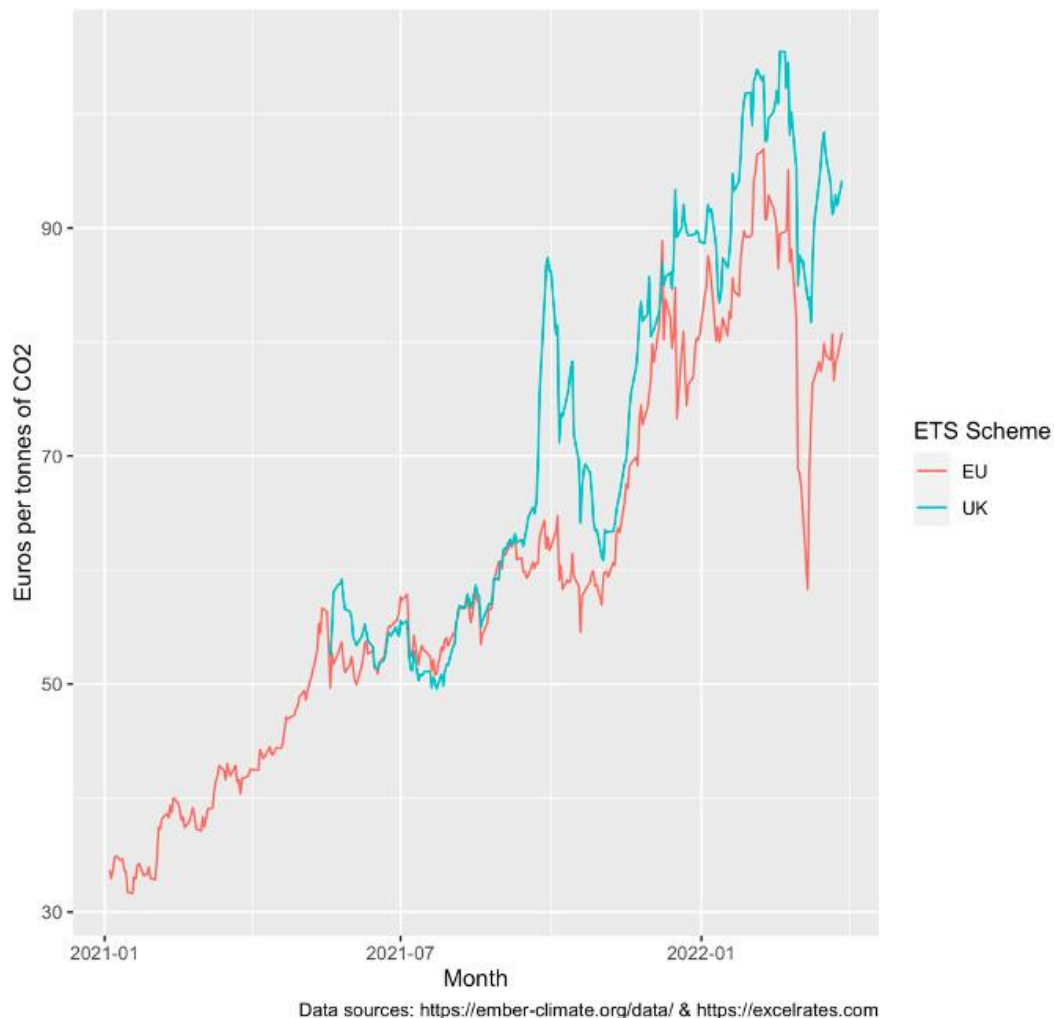
<sup>160</sup> [UK-EU Trade and Cooperation Agreement](#), Art 7.3: Carbon pricing, para 6.

<sup>161</sup> We do not yet have evidence of how firms would react to providing two lots of somewhat different emissions-related information, but we do know that the border formalities on UK-EU trade introduced since Brexit have contributed to a dramatic decline in the number of varieties (defined at country by product level) being traded – R Freeman et al, [Unravelling deep integration: UK trade in the wake of Brexit](#), (Discussion Paper No 1847, Centre for Economic Performance, Apr 2022).



similar but not identical (Figure D.4), but unless the EU and UK markets are actually linked so that arbitrage can occur (say by facilitating transfers of credits between the EU and UK), it cannot be guaranteed that they remain so. Someone will need to define what degree of difference is acceptable for exemption (and over what period differences are measured).

Figure D.4 Carbon Prices 2021-22: EU and UK ETSs\*



\* Definitions: the ETS prices are futures prices and the exchange rate daily rates measured at 4:30 Central Eastern Time

Third, having different prices for carbon in the EU and UK generates economic inefficiency (different costs of abatement in the two markets) and two smaller markets will face greater volatility than one combined market (because the latter has greater ability to smooth shocks).

Fourth, if the EU and the UK have different BCA certificate prices, there will an incentive for goods to enter the EU/UK via the one with the lower certificate prices and be transferred to the other without further BCA 'interference'. Regular rules of origin (ROOs) may be able to prevent some of this, but if the MFN tariff and other border frictions are lower than the

differences in cost arising from the BCAs, firms can ignore the ROOs by not seeking preferential access and still find trade diversion profitable.

A final argument for linkage is to address the particular complexities of Northern Ireland. Electricity generators in Northern Ireland fall within scope of the EU ETS, while other ETS-included sectors fall under the scope of the UK ETS. The European Commission has proposed that CBAM should be applied to imports into Northern Ireland, in order to prevent exporters using Northern Ireland as a means to circumvent EU CBAM requirements. Applying new EU rules on CBAM to Northern Ireland will fall within the scope of the Northern Ireland Protocol, and both Parties must agree within the EU-UK Joint Committee which governs its implementation. It will introduce another intra-UK trade barrier, and thus likely provoke resistance from the UK Government in the context of already fraught negotiations about the implementation of the Protocol. Linking ETS schemes with the EU would resolve this problem neatly by removing CBAM requirements from Northern Ireland (and the UK as a whole).<sup>162</sup>

### **Climate club model 2: Mandatory minimum standards**

A very different approach to climate clubs is implied by the EU-US proposed Global Arrangement on Sustainable Steel and Aluminium (GASSA), outlined in Section B. While many elements of GASSA remain undefined, the Arrangement presumably exempts participating countries from tariffs based on their adoption of mandatory minimum low carbon standards regardless of the non-existence of carbon pricing. Underpinning this approach is the necessity of developing a shared methodology for calculating embodied emissions. The UK, which has recently secured the removal of the Trump-era tariffs on steel and aluminium, would appear to be a prime candidate for joining such a climate club. As a relatively small player, however, it seems unlikely to be able to influence its terms.

If the EU and US wish to make the GASSA more robust from the perspective of WTO rules and trade diplomacy, it will be necessary that their mandatory minimum standards for steel and aluminium are transparent, and that any country who wishes, can, upon meeting this standard, be exempted from tariffs or other charges (as yet undefined) that the EU and US would otherwise impose. However, the current proposal conflates concerns about emissions with concerns about fair competition and state intervention, suggesting that even if Chinese steel (to take a particularly pertinent national example) met the mandatory minimum standard, it would still be excluded. This makes the proposal difficult to defend as upholding climate objectives fairly, and also undermines its effectiveness in achieving the aims of a climate club, namely to provide a market incentive for low carbon production. It should also be noted that it is unclear whether this measure would provide the US an exemption from EU CBAM charges, as it seems more focused on addressing steel and aluminium overcapacity.

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<sup>162</sup> For further discussion, see European Scrutiny Committee, [Thirteenth Report of Session 2021–22, Documents considered by the Committee on 1 December 2021, HC 121-xii](#).

Table D.9 Climate clubs options: summary table and key

**Climate clubs (country-based exemption) against goals**

|                                | Environmental |      | Technical feasibility |      | Equity: international |      |       | Equity: domestic costs |      |
|--------------------------------|---------------|------|-----------------------|------|-----------------------|------|-------|------------------------|------|
|                                | (i)           | (ii) | (iii)                 | (iv) | (v)                   | (vi) | (vii) | (viii)                 | (ix) |
| Linked ETS schemes             |               |      |                       |      |                       |      |       |                        |      |
| Comparable domestic regulation |               |      |                       |      |                       |      |       |                        |      |

| GOALS  |   |
|--|---|
| <b>Environmental goals</b>                               | <b>Equity goals: international</b>                            |
| i Addresses risk of carbon leakage                       | v WTO legality: treats products evenly (market-based tests)   |
| ii Addresses consumption emissions more broadly          | vi WTO legality: Environmental coherence (policy-based tests) |
|  | vii Developing countries (CBDR-RC)                            |
| <b>Technical feasibility goals</b>                       | <b>Equity goals: domestic costs</b>                           |
| iii Complexity for exporters to UK, or importers into UK | viii Cost to UK consumer                                      |
| Iv Compliance assessment (for government/verifiers)      | ix Cost/difficulty for competing UK firms                     |
| <b>ASSESSMENT</b>  | <b>Meets goal</b>   |
| More effective, but some concerns                        | Less effective in meeting goal                                |
| Ineffective in meeting goal                              | Not applicable  |

**D. Applicability to exporters**

**I. Decision**

**Should UK producers exporting to other countries be subject to domestic carbon prices and product standards, or should they be exempted?**

Whether to provide export rebates is a crucial question in developing BCAs, and also relevant to the introduction of product standards based on embodied emissions. For BCAs, UK industry’s concern will be that paying ETS charges or meeting UK standards would cause UK producers to lose export market competitiveness relative to overseas producers who do not face those obligations. To the extent that UK industries export to countries that do not have emissions policies equivalent to the UK, neglecting to rebate emission charges on exports raises their costs. The resulting decline in their international competitiveness may cause them to be displaced in those markets by higher-emitting competitors (either domestic or from outside their borders), thereby increasing the overall emissions resulting from consumption in those markets. This constitutes leakage just as much as does UK firms losing out in the UK market if imports are admitted with fewer obligations than apply locally. If the UK wanted to improve its firms’ export competitiveness, it could simply forgive UK producers ETS charges upon export (export rebate). Conceptually, addressing this source

of leakage could be implemented more or less independently from BCAs that apply to imports.<sup>163</sup>

At its core, this decision demands clarification of why the UK is applying these measures: in response to concerns primarily about UK competitiveness or global emissions? On its face, the UK ETS is a production policy designed to discourage carbon use in UK production for sales both at home and abroad – at least until we take account of free allowances, which we discuss elsewhere. An import-focussed BCA essentially takes this policy towards being a destination-based (consumption-based) policy, by which UK consumption is charged a fee for emissions regardless of their location. A pure destination policy, however, would rebate ETS payments on exports.

In a world where we have no interest in whether or not overseas jurisdictions impose charges/taxes on their consumption (for example, the regime for Value Added Tax), having a rebate on exports would seem perfectly obvious, but the fact that carbon emissions are a *global* externality makes that view moot: we *do* have an interest. Further, rebating exports for UK producers would mean that they could develop cheaper, high-emitting product lines for export. Indeed, failing to provide export rebates would be a powerful statement that the UK will not use its BCA to incentivise supply chains producing to lower levels of carbon-efficiency for export markets.

When examining the design of a BCA, we have assumed that prevention of leakage, and emission reduction objectives, are primary, but for industry there is a general concern about losses of competitiveness including in export markets, even if their interests are heterogeneous.<sup>164</sup> Indeed in the EU, exporters' concerns have driven countries such as Germany to push for export rebates as an essential component of the proposal.<sup>165</sup> Garicano has identified exporters' concerns as the most critical of the challenges facing the introduction of an EU CBAM.<sup>166</sup> It is clearly an important decision area for the UK.

Garicano proposes a pragmatic compromise between a policy unambiguously aimed at reducing emissions and the exporters' fears of a competitive disaster and possible carbon leakage. He suggests that export rebates should be offered on exports (those that do not face BCAs elsewhere) only up to the level that would be warranted if the exporters were among the best (lowest) 10% of emission performers for that product. In the EU this is the same threshold as applied in the ETS default values. It means that exporters continue to pay the ETS charges on any emissions they incur above the 'super-efficiency' threshold. This certainly does give the export rebate arrangements a smattering of respectability from a climate perspective, but clearly reduces the incentives for exporters to innovate to reduce

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<sup>163</sup> The reservation is that import and export regimes may get linked for re-exports or in the case of imported inputs into UK exports.

<sup>164</sup> Some EU manufacturers, for example, have opposed CBAM as it drives up prices for primary commodities they must purchase. See for example European Council on Foreign Relations, [Europe's green moment: How to meet the climate challenge](#) (Apr 2021).

<sup>165</sup> N Kurmayer, [German industry wants export rebates, free certificates and a carbon border levy](#) (euractiv, 11.02.22).

<sup>166</sup> See his presentation, L Garicano, [Towards a CBAM: economics, political economy and legislation](#) (21.03.22).

emissions overall. The proposal envisages a 10-year transition under which EU producers, as they progressively decarbonise, would eventually have free allowances replaced by export rebates covering most of their exports. Garicano does not address how/whether other price supports benefitting EU producers, such as subsidies, would be taken into account, which would be necessary to achieve equality of treatment between domestic and imported products but adds an additional layer of methodological complexity.

The WTO has provisions that permit policies that impose taxes on imports for the same reasons and at the same rates as are applied to domestic producers, and the rebate of those taxes on exports. That is, it permits policies to offset the competitive disadvantage that UK firms might suffer from certain UK indirect taxes. While the WTO Subsidies Agreement prohibits export subsidies, it excludes from its definition of a subsidy the exemption of exported products from the payment of duties or taxes borne by a product which is destined for domestic consumption.<sup>167</sup>

There would clearly be value in a global agreement to treat carbon caps and their prices as either (destination) consumption-based or (origin) production-based policies. To a first order it would not matter for efficiency which of these was chosen if the whole world participated, although it would still affect the distribution of costs and revenues – one of the bones of contention in a global carbon tax. In the absence of such agreement, however, any solution is going to appear rather ad hoc, with exports to some countries receiving rebates (on the basis that they will be subject to equivalent fees in the destination country) and those to others not (on the basis that they will not).

The standards equivalent of the export rebate debate is the possibility of exempting UK production for export from the standards requirements for domestic sales, i.e. allowing ‘dirty’ sales abroad while banning them at home. Generally speaking, companies can produce separate product lines destined for an export market, and in some cases these may not conform with domestic regulatory requirements. One example is the establishment of separate production lines for beef free from hormone growth promoters destined for the EU (and now UK) market in Australia, subject to an independent certification regime.<sup>168</sup> Another more contentious example in the UK is the manufacture and export of pesticides whose use is banned domestically.<sup>169</sup> Firms’ ability to exploit such a loophole will depend on how such standards are structured and enforced, and feasibility of establishing separate product lines will differ from sector to sector. Thus, at this preliminary stage, it is difficult to provide a comprehensive analysis of this issue beyond simply flagging that it raises similar tensions between environmental and industry objectives.<sup>170</sup>

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<sup>167</sup> See [Agreement on Subsidies and Countervailing Duties](#), footnote 1.

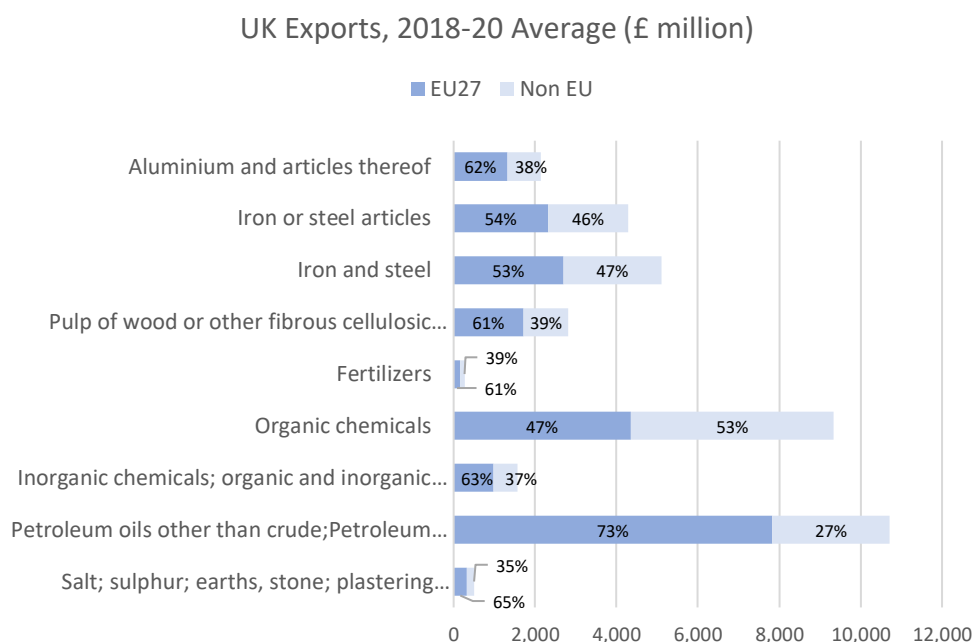
<sup>168</sup> Australian Government, [European Union Cattle Accreditation Scheme](#) (EUCAS).

<sup>169</sup> This has been subject to some controversy, see for example, C Dowler, [Revealed: UK shipped more than 10,000 tonnes of banned pesticides overseas in 2020](#) (Unearthed, 22.02.22).

<sup>170</sup> It is also worth noting that the two examples quoted refer to local externalities (i.e. those contained within the boundaries of the country consuming the product), whereas CO<sub>2</sub> is a global externality.

The export issue is potentially a major one. The UK Input-Output Tables (IOT) 2018<sup>171</sup> show that, several of the sectors generally held to be emissions intensive are heavily export dependent. For example, oil extraction has an export/gross output ratio of 87% (in value terms), ‘other chemicals’ 82% and basic iron and steel 32%. A redeeming feature, however, is that for all, the larger part of exports is to the EU (not surprisingly given their bulk and weight of their products). Thus, if the UK aligns its ETS sufficiently closely to the EU’s, these exports will avoid the EU CBAM and hence not suffer a competitive disadvantage in the EU even if they do not receive export rebates. Figure D.5 gives the breakdown of UK exports (2018-20) between EU and non-EU markets. This is based on trade data (rather than the industry data in the IOT), using the Commission’s Impact Assessment Annex 7 as a rough translation of sectoral classification to the trade one.

Figure D.5 The destination of UK exports 2018-20 in ‘CBAM-relevant’ categories<sup>172</sup>



## II. Options

Based on the analysis above, the options for BCAs and export rebates are relatively straightforward: full export rebates; no export rebates; or partial export rebates, for example based on performance standards. Full export rebates would benefit UK industry, but negatively incentivise exporting firms to decarbonise. However, to the extent that UK firms are already ‘greener’ than their foreign competitors, neglecting to rebate their exports could also be perverse for international decarbonisation. These variable effects have led to

<sup>171</sup> Office for National Statistics, [UK input-output analytical tables – product by product](#) (Apr 2022).

<sup>172</sup> Authors’ calculations based on ComTrade data. CBAM-relevance from EU Commission Annex 7 defined in the Harmonised System (HS) Classification as HS 76, 73, 72, 47+48, 31, 29, 28, 271 and 25 respectively from the top.

middle scores. The most coherent (green) option with respect to preventing leakage is to rebate firms based on their actual emissions.

Notably, with respect to WTO law, when assessing climate coherence, the emphasis is slightly different. Here, a UK decision to give export rebates would likely be greeted with much suspicion, as it seems to undermine purported environmental objectives of the BCA by incentivising higher carbon exports. In order to justify such a policy, the UK would have to have a rigorous basis for arguing that a blanket exemption on exports served its objective of preventing leakage. Here, the most defensible options are either not rebating exporters (in line with the Commission’s proposed approach) or doing so in a way that clearly aligns with decarbonisation objectives (Garicano’s proposed approach).

The option of waiving of product standards for exporters is not included in this table, as the nature of such standards is highly uncertain, making such an assessment difficult (the conceptual issues are discussed above).

Table D.10 Applicability to importers options: summary table and key

**Applicability to exporters against goals**

|  | Environmental |      | Technical feasibility |      | Equity: international |      |       | Equity: domestic costs |      |
|--|---------------|------|-----------------------|------|-----------------------|------|-------|------------------------|------|
|  | (i)           | (ii) | (iii)                 | (iv) | (v)                   | (vi) | (vii) | (viii)                 | (ix) |
| Full export rebates for BCAs   |               |      |                       |      |                       |      |       |                        |      |
| No export rebates for BCAs   |               |      |                       |      |                       |      |       |                        |      |
| Partial export rebates for BCAs, e.g. based on performance standards |               |      |                       |      |                       |      |       |                        |      |

| GOALS  |   |
|--|---|
| <b>Environmental goals</b>                               | <b>Equity goals: international</b>                            |
| i Addresses risk of carbon leakage                       | v WTO legality: treats products evenly (market-based tests)   |
| ii Addresses consumption emissions more broadly          | vi WTO legality: Environmental coherence (policy-based tests) |
|  | vii Developing countries (CBDR-RC)                            |
| <b>Technical feasibility goals</b>                       | <b>Equity goals: domestic costs</b>                           |
| iii Complexity for exporters to UK, or importers into UK | viii Cost to UK consumer                                      |
| iv Compliance assessment (for government/verifiers)      | ix Cost/difficulty for competing UK firms                     |
| <b>ASSESSMENT</b>  | <b>Meets goal</b>   |
| <b>More effective, but some concerns</b>                 | <b>Less effective in meeting goal</b>                         |
| <b>Ineffective in meeting goal</b>                       | <b>Not applicable</b>   |

### 3. BCA-specific issues

*Box 1: Key elements of the EU Commission CBAM proposal (July 2021)*

**Scope:** Electricity, aluminium, cement, steel and fertilizers

**Pricing:**

- ETS price (determined based on weekly average) per tonne of GHG emissions x tonnes of GHG embodied in shipment.
- Individual installations calculate actual emissions.
- If actual emissions unavailable national averages will be used.
- If no reliable data available, average emissions intensity of the 10% worst performing EU installations will be used.

**Administration:**

- EU border authorities record products imported but do not assess/administer charges
- Charges paid once a year by turning in the appropriate number of emissions certificates which importers have to purchase (without limit).
- 'Shadow' ETS – permits are not part of ETS and do not affect its price.
- Importers in the EU obliged, at the end of each quarter, to hold a stock of certificates equal to at least 80% of the value of imports they have made so far in the reporting year.
- If importers to EU end the year with excess amounts, the authorities will buy them back at cost (up to a fairly generous limit).
- Arrangement ensures that importers and domestic producers face approximately the same price for emissions.

The salient difference between BCAs and product standards is that the former is based upon the premise that imported products should pay equivalent carbon prices as those extended to domestic producers, while the latter covers regulatory requirements. Thus, BCA design, unlike product standards, requires decision-making about how to determine the price that products imported into the UK will pay. This incorporates whether to link the BCA rate to the price of credits in the ETS market (pricing mechanism) and also the extent to which one must rely on benchmarks rather than the actual, measured, emissions caused by any import (pricing benchmarks). It should also be noted that determining what is included in that price is key. In the UK there are a plethora of indirect and direct carbon prices (both positive and negative from a price perspective) that may need to be taken into account. For example, in the electricity sector, the UK compensates producers for indirect costs as well as imposing the ETS price.<sup>173</sup>

#### A. Pricing mechanism

##### I. Decision

**Will the UK design its BCA as an extension of its ETS, or will it use a different pricing mechanism, such as consumption (excise) taxes or a fixed border tax?**

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<sup>173</sup> BEIS, [Compensation for the indirect costs of the UK ETS and the CPS mechanism: guidance for applicants](#) (Apr 2022).



A UK BCA could follow the EU CBAM model and require that BCA obligations are paid by means of certificates, the price of which shadows almost precisely the price of carbon credits in the ETS. Shadowing the UK ETS makes the BCA price dynamic; as it changes, the cost to importers of a particular import with a given emissions rating (the number of certificates that must be turned in to import it) varies. This causes uncertainty for importers, and hence for exporters, about their final prices in the EU market, an issue that may impinge unduly on SME exporters. It should also be noted that in the UK, there is the Carbon Price Support in addition to the UK ETS on electricity generators. This raises broader questions about what is considered when imposing a fiscal measure on imports (i.e. the UK ETS price is not the only 'carbon price' seen by operators).

In contrast to the dynamic approach, a fixed-price import policy might take several forms. BCAs might be levied as an excise duty on consumption of carbon-intensive materials or a tax applied on imports at the border. It could also be envisaged as an extension of the ETS, but with the price set over longer intervals (for example, yearly). In any of these scenarios, if mapped onto the UK ETS, prices would inevitably diverge from the domestic ETS price, and unless the fixed price was reliably lower (which would present challenges to the environmental integrity of the scheme), challenges under the WTO's national treatment principle, which requires imported products to be treated no worse than national ones with respect to taxes and regulation, would appear almost inevitable. In addition, consumption taxes would require reform to the UK's domestic regulatory framework, and might introduce additional regulatory burdens on domestic producers not borne by im/exporters, thus being ineffective in addressing leakage. These concerns were cited by the EU in its rejection of this option as the primary means for regulating leakage. However, as discussed in the product scope section, excise taxes might make sense as a measure introduced to address consumption emissions not covered by the ETS, in conjunction with equivalent domestic taxes.

A shadow ETS, in which exporters surrender certificates periodically to the UK Government, moves much of the verification and compliance process away from the border, lessening the burden on customs officers to assess whether embodied emissions have been calculated correctly. It also assists with WTO compliance: GATT Article II requires that parties are exempt from charges on goods beyond those agreed in their WTO tariff schedules, unless they are equivalent to a domestic ('internal') tax. This means that, in order to conform with this criterion, the BCA must be triggered by an internal factor (like the sale of the product), rather than paid upon import. Yet it still remains untested in the WTO whether border tax adjustment is permitted on taxes associated with how a product is produced (in this case, its embodied emissions) or whether it is limited to taxes on what is physically incorporated in the product. Despite being decades old, this issue has not yet been clarified in a WTO dispute.<sup>174</sup> Also, WTO rules do not allow border tax adjustment for direct taxes (on producers) – they can only be applied to indirect taxes (on products). It is thus unclear

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<sup>174</sup> GATT, [Border Tax Adjustments: Report of the Working Party](#), L/3464, BISD 18S/97 (2 December 1970).

whether an ETS can be ‘adjusted’.<sup>175</sup> In sum, BCA is a legally untested and uncertain proposal, but the more closely the UK can mirror its domestic ETS scheme, the more easily it can be justified as a non-discriminatory measure when the need arises.

While the shadow ETS approach means that producers of exports to the UK and UK domestic producers pay (more or less) the same price for emissions, it does not treat the two groups perfectly symmetrically. A more complete solution would be to extend the ETS scheme itself to the exporters (maybe via importers) requiring them to compete with domestic producers for the same fixed stock (cap) on emissions. Winters argues that this would have advantages in terms of efficiency.<sup>176</sup>

Finally, as the CCC contemplates addressing the UK’s contribution to global, and not just national, emissions, the corresponding regulatory question is whether the totality of UK policy towards carbon should be conceived of as having an origin (production) basis (a charge or cap on carbon emissions in the UK) or a destination (consumption) basis (a charge or cap on emissions embodied in consumption within the UK). While BCA that shadows the UK ETS moves towards the latter, this also depends on the treatment of UK exports, as discussed above.

## II. Options

Here we codify the discussion into three options; the last is less precisely defined than the others because the application, design and interaction with domestic measures of excise or border taxes remain highly uncertain. We conclude that the ‘shadow ETS’ option appears to meet the most objectives, though raising issues of equity for developing countries and technical complexity in verification.

1. Extend the UK ETS scheme to imported products
2. Shadow the ETS (require the surrender of shadow permits pegged to ETS prices); and
3. Separately, use fixed prices applied at the border (e.g. consumption or border taxes).

Table D.11 Pricing mechanism options: summary table and key

### Summary table of pricing mechanism mapped against goals

|  | Environmental |      | Technical feasibility |        | Equity: international |        |        | Equity: domestic costs |        |
|--|---------------|------|-----------------------|--------|-----------------------|--------|--------|------------------------|--------|
|  | (i)           | (ii) | (iii)                 | (iv)   | (v)                   | (vi)   | (vii)  | (viii)                 | (ix)   |
| Extend ETS scheme to imported products                                 | Green         | Grey | Orange                | Orange | Green                 | Green  | Orange | Yellow                 | Green  |
| Shadow ETS scheme  | Green         | Grey | Orange                | Orange | Green                 | Green  | Orange | Yellow                 | Green  |
| Excise (consumption) tax   | Green         | Grey | Yellow                | Yellow | Yellow                | Yellow | Orange | Yellow                 | Yellow |
| Border tax on carbon content (fixed rate, verify compliance at border) | Yellow        | Grey | Yellow                | Orange | Red                   | Red    | Orange | Yellow                 | Green  |

<sup>175</sup> For more discussion of this, see R Quick, [A carbon border tax or a climate tariff](#) (International Economic Law and Policy blog, Oct 2019).

<sup>176</sup> L A Winters, Carbon permits and imports: one market or two? (in progress) (University of Sussex, 2022).

| GOALS  |   |
|--|---|
| <b>Environmental goals</b>                               | <b>Equity goals: international</b>                            |
| i Addresses risk of carbon leakage                       | v WTO legality: treats products evenly (market-based tests)   |
| ii Addresses consumption emissions more broadly          | vi WTO legality: Environmental coherence (policy-based tests) |
|  | vii Developing countries (CBDR-RC)                            |
| <b>Technical feasibility goals</b>                       | <b>Equity goals: domestic costs</b>                           |
| iii Complexity for exporters to UK, or importers into UK | viii Cost to UK consumer                                      |
| iv Compliance assessment (for government/verifiers)      | ix Cost/difficulty for competing UK firms                     |
| <b>ASSESSMENT</b>  | <b>Meets goal</b>   |
| <b>More effective, but some concerns</b>                 | <b>Less effective in meeting goal</b>                         |
| <b>Ineffective in meeting goal</b>                       | <b>Not applicable</b>   |

## B. Pricing strategy – use of benchmarks

### I. Decision

#### **Will the BCA use benchmarks to determine the amount of carbon embodied in imported products, or will it require exporting firms to calculate their actual emissions?**

Earlier we described some of the difficulties in agreeing methodologies for assessing embodied emissions. Here we consider a design question particularly relevant for the extension of such metrics to imported products. Should manufacturers calculate their actual emissions, or rely upon sectoral averages (which we term benchmarks) as a basis for regulating their products? The calculation of actual emissions is desirable from an environmental perspective, as it avoids producers paying less than they should based upon their actual emissions. Conversely, ensuring that higher-emitting companies within a country pay more will ultimately help incentivise them to use cleaner technologies (though of course the UK could not prevent countries from exporting lower-emissions products and consuming higher-emitting ones domestically, or exporting them to other countries).

From a technical feasibility perspective, requiring that each installation calculate its own emissions profile places an administrative burden on companies. The costs of documenting emissions are substantially fixed costs and so will be a particular burden to SMEs, which do not have the turnover to support such activities. These difficulties are compounded if BCAs are applied to manufactured goods, which may have components from multiple countries. Each producer of a covered material would need to calculate its emission rate, and these would need to be summed for the final product. This approach also poses challenges in assessing compliance, implying the need for more audit and monitoring functions such as third-party verification.

Rather than requiring every single exporter to calculate their embodied emissions, the UK could use accepted reference points to establish the embodied emissions in particular products. Other commentators have suggested that the use of benchmarks (national or global emissions averages) would be a more efficient approach. For example, to reduce

technical complexity, an IMF position paper advocates average emissions benchmarks specific to the exporting country as the most effective basis for imposing a BCA.<sup>177</sup>

If benchmarks are used, their selection has a dramatic effect on policy outcomes. A modelling exercise by Sakai and Barrett examined the use of a forgiving, Best Available Technology (BAT), benchmark versus national averages.<sup>178</sup> The paper concluded that average charges for a hypothetical BCA would be 15% in China if national averages were used, and only 2.1% if BATs were used; in India the difference was 19.4% to 3.6%, respectively. These differences could certainly be enough to distinguish an effective trade policy in combatting leakage from an ineffective one.

These design choices also have implications for the likelihood that countries will complain at the WTO. With respect to the use of default values, some tensions arise between environmental goals and WTO-compatibility. To avoid challenge, any default charges for embodied emissions in particular products should be equal or lower to those that domestic producers pay on average. It is important that there be an appeal mechanism that enables individual installations to calculate their own individual emissions if they believe them to be lower than the benchmark. It will also be important to ensure that there is a clear and transparent methodology for calculating emissions rates and an accessible route for obtaining approval for lower rates, which is available equally to all trade partners.

## II. Options

Options include:

1. Actual emissions (no benchmarks);
2. Exporting country average emissions for the sector;
3. UK average emissions for the sector;
4. Global average emissions for the sector; and
5. Assuming high performance for imports, e.g. Best Available Techniques.

This discussion leads to a range of options for providing – or not providing – benchmarks. Again, these options in practice are not discreet. The Commission, for example, provides three options in its July 2021 proposal – actual emissions, averages or benchmarks based on poor performance – depending on the amount of information available. They would probably also vary across sectors, and emissions scopes (again, the Commission offers a different approach to methodology for electricity). Here we imagine these as separate options in order to highlight trade-offs more clearly. The key trade-off that emerges is that actual emissions appear to be the optimal basis for the policy from both an environmental and also a WTO perspective, but they are extremely complex to calculate.

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<sup>177</sup> M Keen, I Parry and J Roaf, [Border Carbon Adjustments: Rationale, Design and Impact](#), IMF Working Paper WP/21/239, pp16-18.

<sup>178</sup> M Sakai and J Barrett, [Border carbon adjustments: Addressing emissions embodied in trade](#) (2016) 92 Energy Policy 102.

Table D.12 Pricing strategy options: summary table and key

**Pricing strategy / use of benchmarks against goals**

|   | Environmental |      | Technical feasibility |        | Equity: international |        |        | Equity: domestic costs |        |
|---|---------------|------|-----------------------|--------|-----------------------|--------|--------|------------------------|--------|
|   | (i)           | (ii) | (iii)                 | (iv)   | (v)                   | (vi)   | (vii)  | (viii)                 | (ix)   |
| Actual emissions (no benchmarks)                                      | Green         | Grey | Orange                | Orange | Yellow                | Green  | Yellow | Yellow                 | Green  |
| Exporting country average emissions for the sector                    | Yellow        | Grey | Yellow                | Yellow | Red                   | Red    | Orange | Yellow                 | Green  |
| UK average emissions for the sector                                   | Orange        | Grey | Yellow                | Green  | Orange                | Red    | Red    | Yellow                 | Orange |
| Global average emissions for the sector                               | Yellow        | Grey | Yellow                | Green  | Red                   | Red    | Yellow | Yellow                 | Green  |
| Assuming high performance for exports, e.g. Best Available Techniques | Red           | Grey | Yellow                | Green  | Green                 | Orange | Green  | Green                  | Red    |

| GOALS  |   |
|--|---|
| <b>Environmental goals</b>                               | <b>Equity goals: international</b>                            |
| i Addresses risk of carbon leakage                       | v WTO legality: treats products evenly (market-based tests)   |
| ii Addresses consumption emissions more broadly          | vi WTO legality: Environmental coherence (policy-based tests) |
|  | vii Developing countries (CBDR-RC)                            |
| <b>Technical feasibility goals</b>                       | <b>Equity goals: domestic costs</b>                           |
| iii Complexity for exporters to UK, or importers into UK | viii Cost to UK consumer                                      |
| iv Compliance assessment (for government/verifiers)      | ix Cost/difficulty for competing UK firms                     |
| <b>ASSESSMENT</b>  | <b>Meets goal</b>   |
| More effective, but some concerns                        | Less effective in meeting goal                                |
| Ineffective in meeting goal                              | Not applicable  |

## C. Free allowances

### I. Decisions

#### Should the UK phase out free ETS allowances? If so, on what timetable?

Another difficult decision for the UK in designing its BCA is the timescale for the removal of free allowances. This again speaks to the tensions between using the policy to support UK industry and to prevent leakage. From a WTO compliance perspective, introducing a BCA *without* phasing out free allowances would impose higher embodied emissions prices on imported products than domestic ones. In the EU, however, some have called for a longer transition, to see if the CBAM is effective, before committing to elimination of free allowances.<sup>179</sup> While there may be a degree of patience among WTO Members if the UK is actively phasing out free allowances; extending the transition period for too long while importers are paying ‘full’ BCA prices is clearly a red flag for exporters. They will argue that

<sup>179</sup> C Bellora and L Fontagne, [The EU in search of a WTO-compatible Carbon Border Adjustment Mechanism](#) (VOXEU, 26.02.22).

free allowances constitute an actionable subsidy (which can be met with retaliatory tariffs) or unequal treatment between domestic and imported products with no compelling environmental justification (which will likely fail the WTO Article XX test).

The final equilibrium can obviously not support both import fees/rebates *and* free allowances, but it would probably be disruptive to switch suddenly from one approach to the other. Some sort of phase-in is required. Garicano proposes that, viewing the current situation of a ‘full set’ of free allowances and no border fees/rebates and the final one as no free allowances and a ‘full set’ of border fees and rebates, the policy should be to eliminate the free allowances at the same rate as fees/rebates are increased. It seems likely that a rigid adherence to equality of the rates of decline and increase is a necessary condition for avoiding challenges at the WTO. Anything less would look like an attempt to create competitive advantages for UK firms. To the extent that the final equilibrium offered only partial rebates to exporters (as in Garicano’s other proposal), these would be the target to which the required rate of increase was aimed.

## II. Options

Options include:

1. Phase out immediately on introduction of BCA;
2. Phase out gradually/staged; and
3. Do not phase out.

With respect to ETS allowances, the core trade-off is between domestic industry interests, who may prefer to keep free allowances and not rely solely on BCAs to maintain competitiveness, and the fact that maintaining these allowances undermines WTO-compliance and the environmental objectives of the policy.

Table D.13 Options for free ETS allowances: summary table and key

### Options for free ETS allowances against goals

|  | Environmental |      | Technical feasibility |      | Equity: international |      |       | Equity: domestic costs |      |
|--|---------------|------|-----------------------|------|-----------------------|------|-------|------------------------|------|
|  | (i)           | (ii) | (iii)                 | (iv) | (v)                   | (vi) | (vii) | (viii)                 | (ix) |
| Phase out immediately on introduction of BCA |               |      |                       |      |                       |      |       |                        |      |
| Phase out gradually/staged                   |               |      |                       |      |                       |      |       |                        |      |
| Not phased out                               |               |      |                       |      |                       |      |       |                        |      |

| GOALS  |   |
|--|---|
| <b>Environmental goals</b>                               | <b>Equity goals: international</b>                            |
| i Addresses risk of carbon leakage                       | v WTO legality: treats products evenly (market-based tests)   |
| ii Addresses consumption emissions more broadly          | vi WTO legality: Environmental coherence (policy-based tests) |
|  | vii Developing countries (CBDR-RC)                            |
| <b>Technical feasibility goals</b>                       | <b>Equity goals: domestic costs</b>                           |
| iii Complexity for exporters to UK, or importers into UK | viii Cost to UK consumer                                      |
| iv Compliance assessment (for government/verifiers)      | ix Cost/difficulty for competing UK firms                     |
| <b>ASSESSMENT</b>  | <b>Meets goal</b>   |
| <b>More effective, but some concerns</b>                 | <b>Less effective in meeting goal</b>                         |
| <b>Ineffective in meeting goal</b>                       | <b>Not applicable</b>   |

## 4. Product standard-specific decisions

### A. Mandatory minimum standards – to whom do they apply?

#### I. Introduction

In the previous section, we assumed that the UK ETS would form the basis and justification for the introduction of a BCA. Using an ETS price as the basis of carbon cost equivalence is a relatively straightforward and transparent approach to levying BCA. In contrast, the assessment of WTO-compatibility of performance standards is more complex and more speculative. It raises the question of the extent to which domestic regulation will also move from market-based to performance-standard based, opening many additional questions about how domestic regulation will be designed, and the extent to which it will mirror requirements imposed on exports to the UK. The parameters of such reform will impact upon the effectiveness with which it meets the core objectives we have highlighted above.

In this report, we are primarily concerned with identifying and analysing trade policy, rather than domestic policy, options. As just indicated this area of policy analysis is much less well developed than that of BCAs, so the following discussion is somewhat broader and conceptual rather than offering lists of concrete options as we were able to do above.

Following a report by Energy Systems Catapult<sup>180</sup>, we identify two basic scenarios which seem to represent feasible alternatives to BCA: a ‘simple’ product or producer-based performance standard where non-compliant products are refused entry, and a hybrid or flexible approach based on high-performance benchmarks in combination with pricing. We also consider the role standards imposed on purchasers, either in the private sector or the public sector via low carbon procurement requirements. As well as replacing BCA, product standards can also be used to supplement BCA, to provide a more comprehensive approach to addressing consumption emissions. Our analysis also applies to such broader product standards. We then go on to consider what standards should be based on: just emissions, either averaged over some group or actual emissions for any specific traded product, or on production processes. Finally, we consider the scope for mandating due diligence by

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<sup>180</sup> Energy Systems Catapult, [Industrial Decarbonisation: Net Zero Carbon Policies to Mitigate Carbon Leakage and Competitiveness Impacts](#) (2020).

purchasers rather than direct regulation by some authority. In the following, we will refer to regulations imposing standards on imports generically as border measures (BMs).

It is certainly not guaranteed that countries will ensure that domestic and border measures mirror each other precisely. In its proposed BCA, the USA envisaged a dual approach: from domestic performance standards to carbon pricing for imported products. The heterogeneity of regulation between US states adds an additional layer of complexity to the already difficult prospect of calculating average compliance costs. Similarly, while the ETS is currently UK-wide (with the partial exception of Northern Ireland), moving to performance standards also offers the potential complication that some such standards would be devolved.

In any scenario, a BM will be much more likely to comply with WTO law if the UK changes its domestic regulation to approximate what it required of imports (in other words, introducing performance standards in place of the ETS, where these are required of exporters to the UK). The counterfactual scenario is very unlikely to satisfy the requirements of WTO non-discrimination principles.

This raises the important larger issue of the extent to which the UK should feel constrained by WTO compliance. As we highlighted in Section B, the Peters-Coons legislative proposal for BCA, as well as the GASSA, are highly likely to be found WTO non-compliant. The WTO Appellate Body (or High Court) is not currently functioning; in its absence, a potential challenge to BPs could be appealed 'into the void' and thus avoid a binding WTO ruling.

It is difficult to conclude with certainty whether embodied emissions performance standards will be WTO-compliant. Past WTO disputes demonstrate that the devil is in the details: the design and implementation of a measure informs whether it is viewed as being discriminatory, which can be difficult to predict from simply reading a regulation (and even more so from a report on a prospective measure). It is clear though that an Appellate Body ruling holds some hope of de-escalating potential trade conflict by reducing it to technical questions of regulatory design. Without this, it is far more likely that trade measures the UK proposes will be subject to trade retaliation.<sup>181</sup>

While it hardly guarantees avoidance of retaliation, following principles of regulatory design that can be inferred from past WTO disputes makes it less likely that UK trade partners will object strenuously to UK trade measures addressing leakage, reduces the risk of trade wars that will ultimately harm UK exports, and thus comprises an important element of the diplomatic outreach necessary to justify their introduction. As we have stressed throughout this report, mirroring requirements imposed on imported products with those imposed domestically is likely the single most salient element of WTO-compatibility.

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<sup>181</sup> As noted above, many countries have combined to create and commit themselves to abide by the Multiparty Interim Appeal Arbitration Arrangement (MPIA), which is seen as a substitute for the Appellate Body. The UK is currently not one of these countries, however.



## II. Standards on producers

Since Phase 3 of the EU ETS (2013-2020), the free allocation of ETS allowances for installations at risk of leakage has been based on benchmarks, an approach the UK has carried over for its ETS.<sup>182</sup> Benchmarks represent the performance of the best 10% of plants in terms of GHG emission intensity (tonnes of GHG emitted per tonne of product produced). Installations that meet the benchmarks will receive all the allowances they need to cover their emissions while installations that do not will receive fewer allowances.

A BM for the UK could be based on a similar approach: products are not allowed to be admitted into the UK unless the exporter certifies a lower carbon content than a mandatory minimum. To achieve equity, additional import requirements on embodied emissions would also necessitate the UK phasing out ETS free allowances designed to shelter products at risk of leakage from international competition.

The environmental benefit of such a measure is contingent on its design: if the threshold were established at too low a level, for example, at the top 50% of GHG emissions intensity, this would lessen its effectiveness in addressing leakage (as well as, of course, domestic emissions reductions). However, setting the benchmark too high could create supply shortages if too few exporters were able to meet UK requirements. This problem is less pressing in cap-and-trade price-based approaches.

One implication of mandatory standards is the need for extensive diplomacy. Mandatory standards are rigid – you meet it, or you do not – and create cliff edges. If each country has its own standard for a product, only a firm which produces for the strictest of these can produce to a single standard. Multiple standards complicate production processes and raise the management costs of ensuring (proving) that different specifications are kept separate, and so increase costs worldwide. Moreover, given that approaching net zero will require periodically tightening standards, firms are going to discover that suddenly they are excluded from their traditional markets. Some grandfathering would be possible but not much, given the urgency with which climate change must be tackled. The burden of negotiating these issues over many countries and many products, as affected governments will feel obliged to do on behalf of their own exporting firms and workers, is potentially massive. In its evidence to the International Trade Committee, the CBI stressed (albeit gently) the need for global standards for these reasons.<sup>183</sup>

There is no particular trade policy impediment to introducing mandatory minimum standards on producers or purchasers so long as they are *de jure* and *de facto* non-discriminatory. Avoiding *de jure* discrimination is achievable by ensuring that standards are not based on excluding products or otherwise applying standards differentially based upon their country of origin. The example most pertinent here is an early WTO dispute, *US-Gasoline (1996)*.<sup>184</sup> In the dispute, the US required that foreign refineries used statutory

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<sup>182</sup> BEIS, [Participating in the UK ETS](#) (Feb 2022).

<sup>183</sup> [CBI written evidence](#), International Trade Committee, [COP 26 and international trade](#).

<sup>184</sup> [United States — Standards for Reformulated and Conventional Gasoline](#) (DS2).

baselines, provided by the US Environmental Protection Agency, for calculating whether their gasoline met US Clean Air Act requirements, which required that they remain as clean as 1990 baseline levels. In contrast, domestic refineries were permitted to calculate their own, individual baselines. Though the US cited the administrative difficulty of verifying individual baselines in other countries, the WTO Appellate Body still considered this differential treatment of foreign vis-à-vis domestic refineries to be discriminatory. This makes clear that using default values for imported products while allowing domestic producers to calculate actual emissions should be avoided (and this also applies to BCAs).

The *de facto* condition is trickier. Because countries differ substantially in natural conditions and technical abilities, some standards that are easy to achieve in some countries are difficult or impossible in others. It is not difficult to write standards that would exclude products from particular countries, but in most cases they would be clearly arbitrary and transparently discriminatory. World trade rules seek to exclude these cases and thus case law has emerged in the WTO to test standards against these requirements.

Thus, the UK should particularly avoid, for example, deciding that a particular manufacturing technique mostly undertaken outside the UK is prohibited, without very clear evidence that doing so is necessary to achieve its regulatory objective; or uneven treatment of different countries' products based on unclear/untransparent methodological decisions about their embodied emissions. As discussed above, the application of emissions standards to complex products amplifies the likelihood of complaints of the latter type.

### III. Standards on producers – hybrid

An alternative approach is to adopt mandatory minimum standards but incorporate price-based incentives. The pricing component might take the form of a penalty charge for emissions that exceed the mandatory minimum, or tradeable permits whereby firms with excess emissions can purchase credits from those that reduce theirs below their benchmarks – a tradable permit scheme for excesses. The former variant could permit indefinite failure to meet the standard, which would have to be tackled by gradually raising the price of the permits for excess. It could also, however, provide a useful safety net when mandatory standards are tightened by allowing firms to maintain market access during a temporary period of adjustment to the new standard. This will be easier for firms – and hence for governments – to handle.

The latter approach with a market for permits for excess would essentially create something akin to the ETS for imports. The cap would be the sum across all products of the emissions associated with conducting 'normal' trade with precisely the standard level of emissions per product, and firms would buy and sell deviations from the permitted standards.<sup>185</sup> It would, however, require the added step of defining standards product-by-product on top of the measurement of actual or presumed emission content.

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<sup>185</sup> A similar approach is undertaken in the [Californian Low Carbon Fuel Standard](#).

As outlined by Energy Systems Catapult, such an approach might be introduced in order to ‘lock in’ gains from decarbonisation (perhaps with gradually tightening standards, i.e. lower permitted emissions); it might be introduced after a period of BCAs, and potentially eventually be phased out and replaced by a simple performance standard, as emissions become more nearly negligible. The introduction of a pricing component would ease some of the concerns outlined above that relate to the rigidity of a performance standard – the cliff edges: it would enable flexibility, which would help to address energy security concerns, and also re-introduce an element of economic incentive to decarbonisation efforts. We discuss the relative merits of standards and price-based measures in the last part of this section.

From a trade policy perspective, the requirements applied to exporters would likely resemble very closely those that apply for a BCA. Exporters would be required to determine their embodied emissions, and multiply by the UK’s emissions price. Thus the merits of the approach, vis-à-vis the ETS/BCA combination, rest on the market implications of replacing an emissions cap with a performance standard.

#### IV. Standards on purchasers – private purchasers and public procurement

##### **Private purchasers**

It is already the case that standards are applied to many goods purchased by UK consumers and users. The difference from producer standards is that the responsibility for enforcing the standard – ensuring that sub-standard goods are not sold – resides with the purchaser. If this is a burden the purchaser can reasonably bear – e.g. large firms or the public sector (see below) – that is straightforward, but for consumer goods and indeed goods purchased by small and medium enterprises it has to be located up the chain at the retailer/wholesaler stage. All management of emissions standards tends towards creating market power, by requiring economic actors to undertake processes that are feasibly profitable only above a certain scale. Imposing requirements on retailers brings this disadvantage to an economic activity that might otherwise be free of it.

Consumer standards are often designed to manage emissions in use rather than in production – for example, fuel economy requirements for cars. This takes us towards lifecycle measurements of emissions which seem to be a reasonable lens through which to view products, but which do rely on assessing the ‘average’ use of the product during its lifetime. We discussed this in the methodology section above.

##### **Public procurement**

Public procurement is the biggest component of government expenditure, accounting for about one third of overall public sector spending<sup>186</sup> and nearly 14% of UK GDP.<sup>187</sup> According to the ONS, UK gross spending on public sector procurement was £357 billion in 2020/21, a rise of 17% from the previous year (although this was mostly health spending due to the pandemic).<sup>188</sup>

While public sector procurement alone cannot drive a low carbon transition, progressive companies are likely to follow the signal that Governments provide through green public procurement practices, and the volume of these contracts means that they can make a contribution to decarbonisation. The UK has recently introduced requirements that suppliers in receipt of contracts greater than £5 million must provide a Carbon Reduction Plan that confirms their commitment to achieving net-zero emissions by 2050.<sup>189</sup> The UK could increase the rigour of these requirements by introducing performance standards (such as mandatory minimum standards for embodied emissions) with which particular sectors had to comply.

The UK is a Party to the WTO Government Procurement Agreement (GPA), under which it has agreed to liberalise procurement in areas listed in Annexes, which set out criteria for inclusion. Criteria include, for example, establishing that only contracts that exceed a certain value will be covered, and the types of goods and services covered. Parties are not required to make the same commitments for each trading partner.

The GPA allows countries to restrict their procurement based on social and environmental goals, as long as they comply with the non-discrimination principles of the WTO, rules on transparent award procedures, or can be justified as exceptions. Otherwise, exceptions can be made when only coverage is negotiated.

The GPA requires notification to the Committee of any proposed modification of its list of covered sectors as well as information about the likely consequences of the change. Further, even procurement policies that have been exempted from the GPA commitments can be challenged as non-compliant with other WTO obligations. This is revealed in multiple WTO disputes on local content requirements attached to renewable energy subsidies, which have been found to be non-compliant with the WTO TRIMS and GATT Agreements.

In sum, the UK must ensure that any low carbon procurement requirements extended to other GPA Parties treat them all evenly; if it wishes to pursue low carbon procurement by excluding some areas from the GPA. The UK must also ensure that its approach conforms with WTO rules in other areas.

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<sup>186</sup> Institute for Government, [Government procurement: the scale and nature of contracting in the UK](#) (Dec 2018).

<sup>187</sup> OECD, [General government procurement as a percentage of GDP, 2007 to 2016: United Kingdom](#).

<sup>188</sup> L Booth, [Procurement statistics: a short guide](#) (House of Commons Library Oct 2021).

<sup>189</sup> Government Commercial Function, [Procurement Policy Note 06/21: Taking account of Carbon Reduction Plans in the procurement of major government contracts](#) (Aug 2021).

## B. Mandatory minimum standards – what do they apply to?

### I. By emissions – averages

If the UK wished to impose mandatory minimum standards, either instead of BCA or more broadly than BCA, one option would be to set a mandatory minimum at the average emissions intensity of UK producers, on a sector-by-sector basis. Exporters' emissions would then be calculated based upon domestic average emissions in the country of origin. The main benefit of this approach would be relative ease of implementation. It would enable the UK to maintain its ETS, though it would need to eliminate free allowances in order to create parity with new restrictions faced by exporters. For exporters, national averages would be applied, thus removing the need for any individual calculation of emissions intensity.

This approach, however, would be sub-optimal for environmental and equity objectives. Environmentally, because it is calibrated to national averages, it would offer no individual incentive for foreign producers to advance their decarbonisation. Conversely, dirty producers from countries with overall high standards of decarbonisation would be able to free-ride and export their products to the UK. This would be particularly problematic for developing countries, where high national emissions averages might perversely disincentivise individual decarbonisation efforts.

Using national averages would also risk going against WTO requirements. Dirtier UK producers, who emitted more than national averages, would be permitted to emit more than exporters to the UK. In addition, national averages would fail to cope adequately with goods produced with inputs that were imported. Emissions intensity may be low in the country of the last stage of production, but be high across the whole production chain.

#### **Averages imposed as importer or exporter emissions limits**

A different form of averaging that might be feasible is by importer or exporter, allowing averaging over products. For example, the UK could introduce requirements that importers can import goods up to X volume of carbon in total, being free to choose what products and from where. These options still require product-level estimates of embodied carbon, but HMRC deals with many fewer transactions. Recall that the ETS operates in much this way: firms buy permits for their total emissions whichever product they are embodied in; in addition, the EU CBAM, and implicitly the UK BCA we have discussed, also operate at the importer level – the importer is responsible for purchasing the permits required for imports. One can also conceptualise such a scheme being imposed on exporters, on a country-level or on the level of individual producing firms, although the latter level is getting very close to extraterritoriality.

The disadvantage of the importer-based approach is that it implies a degree of centralised control and management of the emissions in UK imports that gets close to the use of import quotas. These have been largely phased out among major trading nations (with the main exception of agriculture, where hybrid tariff-quota measures, known as Tariff Rate Quotas, are common). The importer-based approach also essentially introduces a dual currency

system: a potential exporter would need to find an importer with sufficient experience to handle its goods and sufficient emission permits to cover them. Such an interventionist approach to managing imports would likely be unpopular with trade partners and would be difficult to justify as reflecting an even-handed approach to UK domestic emissions and those of trade partners. Moreover, dual currency systems and the prior licencing of importers are seriously restrictive of trade: they were among the first targets of reform in the 1970s to 1990s as developing countries liberalised their trade 'encouraged' by the Bretton Woods institutions.

## II. By emissions – actual

The UK could address some of the averaging concerns by requiring exporters to calculate their actual emissions, rather than using national averages. This approach would introduce significant technical complexity, by imposing burdensome regulatory requirements on exporters. The challenges associated with calculating actual emissions discussed above would apply here. It would, however, improve the environmental incentives of the scheme, vis-à-vis country averages.

The approach would remain difficult to justify as non-discriminatory, however, because, assuming the UK ETS stayed in place, the dirtiest UK producers would be allowed to emit more than any exporter. While UK producers would be required to pay for these emissions, a product ban is more trade-restrictive than an ETS payment, creating asymmetry of treatment between domestic and imported products.

### **Applying standards on actual emissions to both UK and imported products**

The asymmetry of using price-based instruments for domestic producers and mandatory standards for imports could be addressed by replacing the UK ETS with national mandatory minimum standards applied to domestic and imported products. The approach would be unlikely to fall foul of WTO non-discrimination rules as long as standards were applied evenly to both domestic and imported products, methodologies were clear and transparent and the regulation applied evenly to all trade partners. The UK would need to consider its approach to exports that paid carbon prices domestically, and might wish to exempt them from such charges.

Alternatively, the UK could maintain its ETS but apply mandatory minimum requirements only to downstream products with ETS-included components, as a means of addressing concerns of distortion/substitution effects. From a trade policy perspective, the issues with this approach primarily concern the technical complexity, which can itself translate into WTO challenges on the grounds of creating unequal treatment of trade partners. Further, banning products that do not meet UK requirements provides less energy security and supply-chain resiliency for the UK, as it does not allow for the flexibility of price-based mechanisms.

### III. By process

The UK currently imposes some requirements on industrial installations to apply Best Available Techniques (BATs) for reducing emissions, and has consulted on how to develop and set future BATs.<sup>190</sup> One approach to mandatory minimums would be to impose BAT requirements for production processes, rather than requirements for particular emissions reduction thresholds to be met. BATs are sector specific, for example, Tucker and Meyer, in their proposal for a 'Green Steel Deal' which informed the US-EU Arrangement on Steel and Aluminium, note that US and EU steel is largely produced with electric arc furnaces, made with scrap and powered by low carbon electricity, which results in lower emissions than a blast furnace; they suggest that this could provide a potential baseline for an international performance standard.<sup>191</sup>

While such process requirements are unpopular with many WTO members, there is no provision in WTO agreements or case law preventing countries from imposing such requirements on one another, as long as they have a strong consistent policy justification and are matched by requirements on domestic producers. (Indeed, standards relating to actual emissions also rest on process distinctions.) This approach would also significantly reduce the complexity of compliance. Rather than having to calculate their emissions, exporters would simply need to certify how they produced their products.

Nonetheless the approach assumes an absolute correlation between manufacturing technique and emissions produced. If this correlation does not hold, it will be seen as excessively rigid and challenged by trade partners. For example, in the *US-Shrimp (1998)* dispute, the Appellate Body found that the US was not in conformity with GATT Article XX because (in part) it required that all exporters impose a turtle excluder device on shrimp boats, rather than investigating the appropriateness of this requirement to the particular conditions in exporting countries and simply requiring that they achieve the same level of protection of endangered sea turtles (a move from regulatory process requirements to regulatory outcome requirements).<sup>192</sup> The imposition of particular production processes on developing countries, in particular, may be unrealistic.

The reference to Best Available Technology implies a global standard and these are not available in all sectors and sub-sectors. The same analysis could apply to any domestic standard enforced in the UK (i.e. it does not have to be 'best'), however in this case there is more chance of a WTO challenge if the standard could be proved to be idiosyncratic or inefficient unless alternatives were allowed if they could be proved to be clean enough. The problem is that this throws one straight back into measuring emissions and so destroys much of the simplicity of the BAT approach.

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<sup>190</sup> Defra, '[Best Available Techniques' – A future regime within the UK](#) (consultation) (closed Apr 2021).

<sup>191</sup> T Tucker and T Meyer, [A Green Steel Deal: toward pro-jobs, pro-climate transatlantic cooperation on carbon border measures](#) (Roosevelt Institute, June 2021).

<sup>192</sup> [United States — Import Prohibition of Certain Shrimp and Shrimp Products](#) (DS58), paras 163-165, 177.



#### IV. Due diligence

In Section B we reported several schemes whereby economic actors are required to carry out due diligence on their trading partners to ensure that they have behaved in some way or have plans to achieve some goals. The UK public procurement requirements mentioned above are also of a due diligence nature. Due diligence does not circumvent the need for promulgating standards because the diligence must be about something and, if it is to have any teeth, requires a benchmark in that thing. However, due diligence may permit a much less precise definition of the benchmark and different (unspecified) ways of achieving it. What due diligence does is shift the burden of responsibility to firms (actors) which the government can influence directly, for example national firms and plants, and also the burden of enforcement. Where the stakes are high, for example emissions by cement producers, it is difficult to see it as a satisfactory substitute for the direct engagement of the authorities.

Mandatory due diligence requirements such as those being introduced by the EU, outlined in Section C, are often viewed with concern by trading partners and require consultation and transparency, along with support for implementation. Reflection on whether the UK has sufficient market power to shift production practices in the target countries is merited. If exports can simply continue to export unsustainably produced products to other markets, then additional requirements will satisfy domestic constituencies but make little difference to production practices.

It is also important to consider who pays the price in the exporting country. Major companies can (and should) have the resources to invest in sustainability, but the cost of additional requirements may be passed on to small scale producers and those who rely on production for their livelihoods. Where due diligence is based on compliance with national environmental laws, the UK would need to work with those governments and relevant domestic organisations to strengthen and ensure this compliance.

#### V. Summary examples of standards options

From a trade policy perspective, many of the issues that arise in the establishment of mandatory minimum standards are similar to those that arise for BCAs because both are based upon assessments of embodied emissions, which involve similar levels of information from exporters. Generally, mirroring domestic requirements with those faced by exporters to the UK is desirable, both from an environmental perspective and to ensure that UK regulation is non-discriminatory. The most relevant dimension of that trade-off for performance standards involves the choice of benchmarks: using average emissions benchmarks to administer the policy is easier administratively, while requiring exporters to assess their actual emissions is more likely to comply with WTO obligations and be more effective in incentivising decarbonisation.

With respect to the choice between flexible performance standards which incorporate both pricing and performance standards, we note that the former provides more of a buffer against supply-chain shortages and re-introduces an element of incentive to



decarbonisation efforts. However, the administrative burden for exporters for flexible performance standards is likely to be more or less the same as that for a UK BCA. Both require assessment of embodied emissions multiplied by a particular rate to determine price.

Standards require decisions on both the ‘whom’ and the ‘what’, so we have not scored them while we considered them individually. In Table D.14 below, however, we create a few concrete examples and provide rankings. Even more than in the discussion of the BCA, these rankings are schematic and approximate, dependent on a host of uncertainties.

Table D.14 Product standards options: summary table and key

**Product standards options against goals**

|  | Environmental |        | Technical feasibility |        | Equity: international |        |        | Equity: domestic costs |        |
|--|---------------|--------|-----------------------|--------|-----------------------|--------|--------|------------------------|--------|
|  | (i)           | (ii)   | (iii)                 | (iv)   | (v)                   | (vi)   | (vii)  | (viii)                 | (ix)   |
| Standard on producer: average exporter emissions required to meet UK averages (maintain ETS)   | Orange        | Orange | Green                 | Green  | Red                   | Red    | Orange | Yellow                 | Yellow |
| Producer standards: actual exporter emissions required to meet UK actual emissions (replace ETS with mandatory minimum for UK producers) | Green         | Yellow | Orange                | Orange | Green                 | Green  | Orange | Yellow                 | Orange |
| BATs imposed as requirements for particular manufacturing processes home and abroad  | Yellow        | Yellow | Yellow                | Yellow | Yellow                | Yellow | Orange | Yellow                 | Orange |
| Hybrid producer standards with tradable permits (maintain ETS)   | Yellow        | Yellow | Orange                | Orange | Yellow                | Yellow | Orange | Yellow                 | Yellow |
| Consumer standards on many goods   | Green         | Green  | Green                 | Orange | Yellow                | Green  | Orange | Orange                 | Orange |
| Public procurement standards based on actual emissions   | Green         | Green  | Orange                | Orange | Green                 | Green  | Orange | Yellow                 | Orange |

| GOALS  |   |
|--|---|
| <b>Environmental goals</b>                               | <b>Equity goals: international</b>                            |
| i Addresses risk of carbon leakage                       | v WTO legality: treats products evenly (market-based tests)   |
| ii Addresses consumption emissions more broadly          | vi WTO legality: Environmental coherence (policy-based tests) |
|  | vii Developing countries (CBDR-RC)                            |
| <b>Technical feasibility goals</b>                       | <b>Equity goals: domestic costs</b>                           |
| iii Complexity for exporters to UK, or importers into UK | viii Cost to UK consumer                                      |
| iv Compliance assessment (for government/verifiers)      | ix Cost/difficulty for competing UK firms                     |
| <b>RANKING</b>   | <b>Meets goal</b>   |
| <b>More effective, but some concerns</b>                 | <b>Less effective in meeting goal</b>                         |
| <b>Ineffective in meeting goal</b>                       | <b>Not applicable</b>   |

## 5. Relative merits of standards and price-based instruments

Table D.15 Some pros and cons of embodied carbon standards

| Pros   | Cons   |
|--|--|
| Allows government to define what they want to happen.  | Complex and expensive to define and forces expensive adjustment.                               |
| Forces change.   | May impose large costs and possibly cause sector closure.                                      |
| Treat domestic and imported products identically.      | National standards may isolate UK market.  |
| Can build a flightpath giving industry time to adjust. | Hard to predict technology changes, some are faster than expected others are slower.           |
| Not an obvious trade barrier like a tariff.            | Still a trade barrier.   |
| Clearly show progress (in theory).                     | May be very difficult and expensive to police in practice.                                     |
| Clearly show what is expected.                         | Very hard to decide in advance what are appropriate levels.                                    |
| Opportunity for UK leadership.                         | May impose additional costs on UK.   |
| Drives change.   | Risk of unintended consequences e.g. potentially removing some key products from the UK market |

The final decision that will need to be taken is the extent to which emissions policy should rely on standards or price-based instruments (taxes or tradable emission permits). It is clear that standards will have an important role under all circumstances, but many commentators would argue for supplementing them with price-based instruments.<sup>193</sup>

The purpose of the price mechanism is to economise on the amount of information that governments/regulators/policymakers require to organise the economy. If all emissions around the world were taxed at the same rate (say, via universal energy taxes at appropriate rates or by all having to buy permits in the same single market), officialdom could rely on producers to cut back on carbon content without having to investigate how they did so either internally within their production processes or between firms/products because changes in consumers'/users' purchases would reveal where they placed the greatest value on a unit of emissions. If achievable, this would be a very efficient solution to curtailing emissions. The border policies we have discussed above arise because this it is not achievable.

Nevertheless, there is still an advantage in principle to using the price mechanism. If all goods sold in the UK of either domestic or foreign origin were taxed or required tradable permits (in addition to any other charges that they faced) such that each unit of embodied emission were charged at the same rate, producers would cut back emissions until the marginal cost of curtailing one unit just equalled the charge that would be levied on that unit. Since all sectors faced the same charge, the value of the marginal unit of emissions would be equalised across the economy, which is a necessary condition for minimising the

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<sup>193</sup> In their discussion of these matters, Pearce and Turner, for example, state: "if a standard is to be adopted, a tax is the best way of achieving it. Clearly, this is not an issue of the superiority of taxes over standards, but a demonstration that a 'mix' of standards and taxes will, generally, be preferable to the adoption of standards alone." D Pearce and R Turner, *Economics of natural resources and the environment* (Johns Hopkins University Press 1990), p104.

overall cost of a given amount of abatement.<sup>194</sup> The price mechanism achieves this, but if one sought to do it via standards, the regulators would have to fix the maximum carbon content in different goods in such a way as to equalise the value of a marginal unit of abatement in all processes. That is difficult enough, but as taste and/or production techniques changed they would have constantly to recalibrate the exercise. A regulation that stated *only* the amount of embodied emission that was permitted in order to sell each good in the UK would not require any more information of producers than the tax/ETS scheme we have outlined above, but determining the permitted amount each year would be more complex than setting an emissions cap.

The conditions in the previous paragraph remain infeasible because the information requirements for the complete coverage of emissions in all products are not met – nor could ever be met in their totality, although improvements in data collection from where we are seem eminently feasible.<sup>195</sup> Hence shortcuts and approximations will be required. So long as carbon content is the only basis for regulating firms' activity or product mix, there is no reason to prefer standards over a price-based instrument. However, when precise quantification is impossible or there are additional objectives such as internal income distribution or facilitating international development, there is clearly a possibility that standards may be easier or politically more acceptable on a pragmatic level.

One such example is that rather than fret over precise carbon content of a complex product, governments might find it easier to ban certain varieties or impose, say, maximum size constraints on it. A second is that when firms have market power (monopoly or monopsony power), their responses to price-based instruments may not be deemed satisfactory and regulation is preferred – consider how providers of public utilities are regulated rather than 'just' taxed into optimal provision.

A further possible argument for standards in at least some cases is that the search for a CO2 standard might be driven more by the desire of policymakers to help consumers make more informed choices. It is possible that by being explicit about carbon content in a standard-based label, the authorities might be able to help consumers to achieve their preferred outcomes more effectively or even shift consumer/user preferences in a constructive direction. This is not considered in the simple model of price-led economic efficiency. Neither does the standard static model consider the incentives for innovation. It is far from clear that regulation provides better incentives and direction for innovation than price-based instruments such as fees and subsidies, but on current knowledge, we cannot rule out a role, even a major one.

Energy Systems Catapult (2020) suggests that free allocation of allowances should be phased out and replaced by a BCA, eventually to be replaced in the long-term by product standards applied at the border. In both cases, the ETS would remain in place, but the

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<sup>194</sup> If one were willing to pay (i.e. placed the value of) £1 to abate a unit of emission in producing good A and £2 in producing good B, policy would be beneficial if it required a bit more abatement in producing A (cost £1) and an equal bit less in producing B (value £2).

<sup>195</sup> We have discussed the boundaries of information and measurement above under the Section B.

policies used to mitigate carbon leakage/competitiveness impacts change or evolve. The decision has to be confronted at an early stage in designing border carbon measures. If achieving net zero implies a total ban on all emissions, it seems inevitable that one has to rely on standards; the ban has to be regulated because there is no market. But if net zero means that we allow ourselves gross emissions of G tonnes per year because that is the rate of decay of the stock of CO<sub>2</sub>, we will need a way to allocate those G tonnes across uses/users, and markets and the price mechanism seem likely to more efficient ways of doing this.

## Section E: Route map – practical steps for implementing BCA and/or embodied emissions product standards

### 1. Introduction

This section identifies the steps needed to identify and implement the best attainable policy approach to implementing the policies discussed in Section D. While Section D analysed the options for BCAs and product standards (*what and why*), this section focuses on the procedure (*how*). In so doing, it has two main aims: maximising the likelihood of implementation and designing an approach which is workable and minimises damage. For easy reference, we also briefly revisit some of the key policy issues relevant to each element of implementation.

Reducing embodied carbon is a multifaceted problem. In addition to presenting huge technical challenges, it is also a political and economic optimisation. As such the challenge is not likely to be finding the policy option which reduces carbon emissions by the highest possible amount at an acceptable political and economic cost.

This cannot be a purely domestic consideration as key stakeholders will extend beyond the UK. The feasibility of a UK policy approach will therefore depend on both the impact on the UK and the impact on, and therefore response from, major trading partners. An optimal UK policy cannot be developed then “communicated or sold to” trade partners. Consideration of how trade partners will view a new UK policy needs to form a key part of its development. Unlike the EU, US or China, the UK is not large enough to dictate to the market and be confident that suppliers will modify their behaviour in order to continuing to access the market. The greater the consistency and compatibility between the UK approach and that of its major trading partners, the fewer barriers to implementation it is likely to face.

In the options presented below, there is a vast range of potential outcomes depending on how measures are specified and applied. The detail of how any BCA or standard is designed and implemented is enormously important to the outcome. Many of the practical issues that define whether a policy will be implemented successfully apply equally to both Border Carbon Adjustment fees (BCAs) and product standards (applied both to domestic production and imports).

In both cases, the initial hurdle to starting the process of developing a new approach is gathering domestic political support to enable policy development. Political support at this stage is a composite of government policy principles and an initial estimate of what stakeholder views are likely to be. Without sufficiently broad support, even the most important policy proposals can fail at this early stage and the opportunity to change outcomes is lost. The process is likely to start with a short paper articulating the policy objectives and an objective view of how it might affect a wide range of stakeholders. This will need to be expressed in a non-technical form and be mindful of the priorities of stakeholders across government and business.

This is a far-ranging and complex policy. The resources needed for implementation in government and the private sector in the UK, and in trade partners, may be considerable. As a result, the initial proposal needs to convince all parties of its importance and workability.

## **Government stakeholders**

An important first step in such a complex policy area is considering the roles and objectives of stakeholders and how to achieve sufficient alignment between them. The following list is not a commentary on whether government stakeholders would support some form of border carbon charge or carbon standards, but how they might engage with the idea.

- Number 10 and the Cabinet Office will consider how it fits into Government's overall approach;
- DEFRA and BEIS are both active in regulation and taxation of carbon;
- BEIS is responsible for the impact of policy changes on UK business and for UK energy and climate policy, and net zero delivery;
- DIT leads on trade policy so will be concerned by any policy change which involves border fees or non-tariff barriers;
- HM Customs and Excise will be responsible for the implementation of new tariffs;
- HMT will have a strong interest in any revenue generating policy option, but also concerns about any competitiveness and inflationary impact border carbon restrictions may have; HMT's responsibility for tax and customs/tariff policy is also relevant here;
- FCDO will focus on the international impact both in terms of carbon policy and trade relations and how this affects UK wider interests; and
- HMRC may have a major role in border taxation or compliance assessment and will consider if this can be added to existing systems or requires new implementation mechanisms and costs.

Each department will have different priorities, a workable approach will be needed to navigate them all. In some cases, BCA may have an adverse impact on their normal activities or impose new costs, while the benefit, carbon savings, are not their only or primary objectives. This suggests strong support from the centre of government will be critical to finding a workable outcome.

## **Wider UK stakeholders**

Ideally, private sector stakeholders likely to be affected by a new policy will be invited to comment at a very early stage in policymaking. Large firms who are significantly affected will be able to articulate the impact on them and may lobby against the measure or seek financial support. There may be a larger number of smaller firms who will be unaware of the measure or unable to assess its impact on them. To avoid a distorted response, government will need to consider the impact on those firms who do not lobby as well as those that do.

## **International aspects: timing and leadership**

The EU in general and the Commission in particular is the biggest and most important international stakeholder for this policy area. Europe's implementation of CBAM is the first major international border carbon charge. It will have implications for some UK exporters to the EU, but it also affects UK policy choices. Even if the UK might have chosen a different approach if the EU had not set up CBAM, its existence will have some practical impact over which types of approach are least painful to apply (firms want similar compliance regimes) or most beneficial for the UK to implement (to get exemptions for UK export to the EU).

Table E.1 Key dates (proposed, not confirmed)

|              |  |
|--------------|--|
| January 2023 | EU CBAM reporting requirement begins                     |
| January 2026 | EU CBAM charges apply                                    |
| Ongoing      | Discussions on Global Arrangement on Steel and Aluminium |

Timing is important as shown in Table E.1 (above). Assuming its passage through the EU legislative processes, the EU CBAM requirements are expected to come into force in 2023, but initially only as a reporting requirement. For the UK, an even more significant date is January 2026, when EU CBAM *charges* are due to come into force. The EU's timescale is significant because:

- New EU requirements will build capacity for producers exporting to the EU (many of whom will also export to the UK) to assess their actual emissions. This will make a UK BCA somewhat easier to apply, assuming it requires similar actual emissions calculation and administrative requirements.
- The EU CBAM will stimulate a market for carbon compliance assessment services. These services will be needed by firms demonstrating compliance with any UK system, but serving the UK market alone is unlikely to stimulate the investment needed to make these services available.
- Once EU CBAM, and particularly CBAM charges, commence, the UK is exposed to trade diversion as exporters to the EU seek new markets.
- Commonality with EU CBAM may help reduce compliance costs for UK firms exporting to the EU.
- Exporting nations such as China are obliged to engage with the EU system because it is a very large market.

These factors suggest that the UK needs to act relatively quickly in choosing and developing its approach and that it needs to be mindful of actions in other countries.

The approach the UK chooses should combine an understanding of the issues analysed in Section D and the practical considerations discussed in the rest of this chapter. Section D concluded that introducing BCAs seems to be a more likely/feasible initial approach to addressing leakage, rather than starting from scratch. The Emissions Trading Scheme ETS is a core element of the UK's net zero strategy, which appears to be effective in achieving its domestic aims<sup>196</sup>; replacing it with domestic/imported product standards seems to be a highly disruptive approach. Initially, product standards might also be introduced as a flanking measure, but this would likely require domestic policy reform as well; thus, the analysis of this part is more uncertain.

The Environmental Audit Committee (EAC) has recently come to this same conclusion, writing that 'we consider that work must now commence on developing this into an ambitious policy response.'<sup>197</sup> In the EAC inquiry, Professor Sir Dieter Helm argued that BCAs

<sup>196</sup> Grantham Research Institute on Climate Change and the Environment, [How to price carbon to reach net-zero emissions in the UK](#) (May 2019).

<sup>197</sup> Environmental Audit Committee, [Greening imports: a UK carbon border approach](#) (Mar 2022), pp16-17.

should be ‘fully up and running’ during the 2020s. The Institute for Public Policy Research warned that industry should receive five years of warning in order to adapt and help develop low carbon supply chains. This underscores the need to begin industry consultation immediately.

We argue in Section D that applying performance standards to downstream manufactured goods is complex given the multiple components they may contain which may be sourced from different countries. This does not mean that the UK should not further investigate this area. Indeed, as global capacity and international cooperation builds for assessing embodied emissions, such a prospect may well become more practical and cost-effective. However, imposing such a requirement on the same timescale as the initial introduction of BCAs may not be feasible.

The optimal timing (if any) for the phase-out of BCAs, and their partial or full replacement with performance standards, remains uncertain due largely to uncertainty about the progress of industrial decarbonisation. Thus we have not come to any firm conclusion about the desirability of replacing BCA with performance standards, or the timeline at which this should take place, but we discussed some of the conceptual issues underpinning this choice in Section D. The checklists below consider what would need to be done to implement each potential policy option.



## 2. Scenario 1: Border Carbon Adjustment

### A. Checklist for Scenario 1

#### I. Domestic steps

1. Consider stakeholder interests and gather support.
2. Determine sectoral scope and whether indirect and direct emissions will be included.
3. Determine methodologies for assessing embodied emissions.
4. Determine how funds from BCA will be allocated.
5. Decide how BCA compliance will be assessed.
6. Decide how BCA will be administered.
7. Determine how border controls will be imposed on commodities covered by the BCA.
8. Determine how BCA will interact with ETS and free ETS permits.
9. Decide whether UK exporters will receive export rebates.
10. Public engagement and impact assessment. Conduct studies of how this will impact prices/poorer sectors of society and how this could be redressed (BCA raises revenue after all).

#### II. International steps

1. Coordinate BCA with EU to advocate that UK producers be exempted from EU CBAM charges and administrative requirements. This discussion will likely also encompass the relationship between EU and UK ETS schemes, and the possibility of formal linkage.
2. Initiate discussions with other countries considering the introduction of BCAs to determine their interrelation/possibility of mutual exemption (climate clubs).
3. Identify trade partners most exposed to the introduction of UK BCA and inform them of impending regulation.
4. Inform FTA partners of plans to initiate BCAs.
5. Initiate consultations with developing countries to support their implementation of the BCA, including the possibility of capacity-building support, directing some proceeds to climate finance, or exempting some countries from requirements.
6. Engage with WTO, OECD and IMF.

#### III. Explanation

##### **Domestic steps**

##### *1. Consider stakeholder interests and gather support*

Typically, policies which require more than one department's active involvement of several departments are more difficult and therefore slower to implement than ones which just require a small number. In this case, DEFRA, BEIS, DIT, HMT, the FCDO and HMRC all have significant roles. The centre of government will need to have a big role in encouraging/requiring progress.

The last five years has been a period of exceptional uncertainty, regulatory change and rising costs. Most businesses crave regulatory certainty, so they will not welcome change unless it reduces uncertainty (noting that the future of free allowances is itself uncertain at the moment, so there is the potential to increase certainty with BCAs). For firms exporting to the UK ensuring some degree of commonality with the EU system will be a priority as it will keep compliance costs down.

### *2. Determine sectoral scope and whether indirect and direct emissions will be included*

This will determine both the impact and feasibility of the proposal. From an environmental perspective coverage should be as wide as possible, however there needs to be a cut-off point at which the complexity and practical difficulties, and possibly cost, of applying a BCA exceed the benefit.

Although a broader sectoral application will increase coverage, it is not linear, i.e. the biggest gains come from a few sectors, namely cement, steel, metals and certain chemicals. Most advocates of BCAs envisage starting with a small range of commodities which have lots of energy embodied in their production, for example, mirroring EU CBAM (iron and steel, aluminium, fertilisers, cement, electricity). Even these present a challenge.<sup>198</sup> If BCA is intended to shape behaviour, it will need to be carefully designed, otherwise it may just become a trade tax that does little to change production methods.

### *3. Determine methodologies for assessing embodied emissions*

The practicalities of measuring carbon content are key determinants of policy effectiveness. Measuring actual carbon emissions is an accounting and audit challenge. It has the advantage of being accurate and incentivising a move to lower carbon production but how accurate (and therefore expensive) should the accounting be and how robust is the auditing? Will benchmarks be used? If so, how will they be calculated? If actual emissions calculation required, what methods will be used? What default approaches will be used if actual emissions values are not available?

The ideal accounting timeframe for carbon accuracy is short, but for keeping compliance costs manageable is long. The choice between minute by minute, hourly, daily, weekly, or annually will make virtually no difference in some cases and a big difference in others. In practical terms it may be necessary to diverge from collecting accurate data on actual carbon emissions and use benchmark figures instead.

The most basic form of benchmarking assumes a plant emits the same amount of carbon at all times and that all producers emit the same carbon as a benchmark plant. This has the advantage of being cheap and simple but has the big disadvantages of being inaccurate and doing nothing to incentivise moving to lower carbon processes. The first level of refinement is to identify some variation of a plant to the benchmark. Further refinement gradually gets closer to counting actual carbon emissions. Implementation is likely to be easier to deliver and cheaper if it starts at a simple level and gradually grows in sophistication, rather than jumping straight to a very complex, but more accurate, system.

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<sup>198</sup> National Board of Trade, [Practical Aspects of Border Carbon Adjustment Measures: Using a Trade Facilitation Perspective to Assess Trade Cost](#) (2010).

#### *4. Determine how funds from BCA will be allocated*

Generally, there is no hypothecation of UK revenue. Any tariff revenue will go into the general tax take. However, when a new environmental tax is being implemented with the stated purpose of reducing carbon emissions there may be a case for considering whether some or all of the revenue can be used to stimulate transition to lower carbon production. Seriously affected firms will lobby for some form of support or subsidy either to cover an adjustment period or permanently to cover the competitive disadvantage they now face relative to firms in countries with no BCA. This can expand the complexity of overall policy implementation. If a serious attempt is made at auditing carbon content, it is likely that at least the fixed costs will apply to government. Overall, a BCA should not be assumed to be a source of revenue.

#### *5. Decide how BCA compliance will be assessed*

Carbon accounting is the cornerstone of compliance with a border carbon charge, so compliance can only be as good as the information on carbon emissions captured and the comparability of data. An example of this is that EU CBAM reporting requirements start in 2023 but that is a soft start before the 2026 start of revenue collection. Firms' ability to capture carbon emissions and the EU's ability to verify what is reported will develop over time.

There is a financial incentive to under-report embodied carbon, so ensuring accurate carbon accounting will require checking. Unlike financial accounts, it is not possible to require firms to provide accounts audited by a trusted external firm as carbon auditing expertise is not yet widespread. The easiest, but least robust, option is to rely on firms' honesty, but that is problematic; the other extreme is to have UK government-financed carbon auditors to undertake inspections. This would be expensive and time consuming. Until there is a widespread carbon auditing capability, there may be no satisfactory answer. The development of EU CBAM will stimulate the development of carbon accounting and auditing capability. Auditing and enforcement require both the ability to scrutinise and verify records but also physical testing to ensure the records are meaningful.

#### *6. Decide how BCA will be administered*

It is likely to be far easier and cheaper to integrate payment and collection of BCA into existing customs and excise processes rather than starting a new one from scratch. It is a border duty taxation issue rather than an import control/licensing issue. BCAs are likely to be added for specific tariff codes. The breadth of coverage of the BCA will determine how many tariff lines are covered and could be integrated into existing compliance processes. This approach is only possible if HMRC are willing and resourced to undertake it, making their involvement in policy design essential.

Setting the BCA and auditing the reporting by firms selling to the UK will require a body to define BCA levels and to oversee or undertake auditing. This will require skills not currently available in the public sector and currently very scarce in the private sector.

#### *7. Determine how border controls will be imposed on commodities covered by the BCA*

The UK will need to determine the frequency with which it will undertake documentary checks to ensure compliance at the border and provide resourcing to perform these checks.

## *8. Determine how BCA will interact with the ETS and free ETS permits*

Section C explains the importance of common carbon taxation. If BCA pricing differs drastically between UK producers and imports, this will lead to practical and efficiency problems. The practical problems include risking trade disputes and shifting production without reducing carbon.

## *9. Decide whether UK exporters will receive export rebates*

This will be a policy choice. Objectively if a commodity is imported into the UK, is not transformed in any way, then is re-exported to a country which does not have a carbon tax (for example, metals held in UK warehouses), there is a case for rebating the BCA. This is because the commodity has not been used at all so should be treated as if it never entered the UK. If firms in the UK import a raw material, transform it into goods, then export them, the case is weaker because if they had used a domestically produced commodity, they would have paid a carbon tax via the ETS. However, if the destination country does not tax carbon it would amount to the UK taxing carbon on their behalf. Double taxation would only happen if the destination country-imposed border carbon taxes on the goods. This would be a compelling case for an export rebate. As mentioned in Section C, there is a compelling case for international agreement on this.

## *10. Public engagement and impact assessment*

Government usually engages in public engagement to sell a policy idea which may otherwise face opposition or to benefit from potentially popular policies. Public engagement rarely means the general public as a whole, who typically do not have views on most technical policy changes. Instead, it means interest groups. In the case of a Border Carbon Adjustment policy, interested parties will be businesses directly and indirectly affected, and environmental groups and environmentally aware consumers.

Business typically seeks information on how a policy change might affect them and the compliance process. Large firms or those in well-organised trade associations may seek to influence the policy, while most other firms will be more focused on compliance than trying to shape policy. In both cases, detailed and relevant information will be important and will generate business engagement. Vague, heavily spun or misleading statements will generate an adverse reaction. Ideally engagement will be based on the interests of each segment of “the public” and will consider costs and benefits to each group.

## **International steps**

### *1. Coordinate BCA with EU CBAM*

The interaction of UK BCA and the EU CBAM is likely to be the most important single international aspect of UK BCA implementation. Key aims will be to minimise the burden on UK/EU trade to ensure that UK producers are exempt from EU CBAM charges and administrative requirements. None of these should be assumed as inevitable. The UK will need to demonstrate the similarity of objectives and the technical equivalence of the UK approach. This interaction will need to cover EU and UK ETSs, which operate in a similar way

despite difference in stated objectives<sup>199</sup>, and the possibility of formal linkage. Compatibility will avoid additional costs. Alignment of compliance and reporting between the two systems is likely to be a key priority for firms as it will help moderate the increase in costs from border carbon taxation and meeting requirements of two different systems. Approximate alignment of pricing between the UK and EU systems will avoid most barriers to mutual recognition. An alignment of carbon auditing system is also desirable to simplify and reduce the cost of compliance.

## *2. Initiate discussions with other countries considering the introduction of BCAs*

Building commonality of approach will greatly facilitate developing international standards. The first and most immediate priority will be engaging with the EU because it is a front runner in implementing BCAs and by far our largest trading partner.

## *3. Identify and inform trade partners most exposed*

It will be important to inform firms in countries that are most exposed to the introduction of UK BCA. For some products, sources of UK imports are relatively stable, so it will be clear who is affected. Once firms and countries affected have been identified, dialogue will be needed to explain the process and where possible what they can do to mitigate the impact of complying with the BCA. In theory, WTO expects this to be a consultation process, however in reality, larger countries are seldom mindful of the interests of smaller ones. The UK is a medium-sized country, so in some cases this may not be a comfortable interaction as it will impose costs and reduce trade. Lack of clarity and unpredictability need to be avoided as they will generate more uncertainty and hostility. Border carbon fees will be seen as barriers to trade by countries who currently export liable products to the UK. This will be highly unpopular and it is possible that these concerns will be raised as WTO disputes as well as challenged bilaterally.

## *4. Inform FTA partners of plans to initiate BCAs*

The UK is a party to a number of FTAs through post-Brexit continuity agreements<sup>200</sup> and has signed recent FTAs with Australia<sup>201</sup> and New Zealand.<sup>202</sup> It is negotiating accession to CPTPP and FTAs with India, Mexico and Canada, and preparing for negotiations with a number of additional countries, notably the Gulf Co-operation Council (GCC).<sup>203</sup> While these FTAs do not restrict the UK from introducing BCA, the UK should be prepared to address concerns about its impacts that may arise in fora such as Joint Committees which oversee FTA implementation (for agreed FTAs) as well as during negotiations (for future FTAs).

## *5. Consultations with developing countries*

Some developing countries may need support to comply with the implementation of BCA, including in some cases various forms of special treatment. These could include the possibility of capacity-building support, adjustment support as some countries lack the

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<sup>199</sup> J Reland and S Overton, [UK and EU greenhouse gas emissions trading schemes explainer](#) (UK in a Changing Europe, 04.06.21).

<sup>200</sup> DIT, [UK trade agreements with non-EU countries](#) (May 2022).

<sup>201</sup> [UK-Australia Free Trade Agreement](#).

<sup>202</sup> [UK-New Zealand Free Trade Agreement](#).

<sup>203</sup> D Webb, [Progress on UK free trade agreement negotiations](#) (House of Commons Library, May 2022).

resources to finance adjustment. Development specialists have advocated directing some proceeds of BCAs to assist with adjustment finance, or even exempting some countries from requirements. Resolving the tension between development and climate objectives may be challenging.

#### *6. Engage with WTO, OECD and IMF*

International bodies such as WTO, OECD and the IMF are considered to be leaders on global carbon taxation and are all making proposals for global progress. There is less consensus amongst their memberships on whether and how to proceed. Determining how a UK BCA might fit with these initiatives, and critically which might develop into global standards, is a key policy challenge.

### 3. Scenario 2: Introduction of mandatory minimum standards for embodied emissions

#### A. Checklist for Scenario 2

##### I. Domestic steps

1. Determine sectoral scope and whether indirect and direct emissions will be included.
2. Determine methodologies for assessing embodied emissions.
3. Determine what the minimum thresholds will be and the time periods for which they will rule.
4. Determine how mandatory minimum standards will be applied to exporters, for example will they be managed through exporter-specific emissions limits or will the attainment of minimum standards be required/assessed for each shipment?
5. Decide how compliance will be assessed, i.e. which designated national authority will evaluate whether exporting firms have reported their emissions accurately and handle queries/complaints from exporters?
6. Determine how border controls will be imposed on commodities that have to meet mandatory minimums.
7. Determine how mandatory minimum standards will interact with the UK ETS. Will they be applied domestically in place of the ETS? If not, how will the mandatory minimum benchmark be determined?
8. Public engagement and impact assessment. Conduct studies of how this will impact prices/poorer sectors of society and how this could be redressed (BCA raises revenue after all).

##### II. International steps

1. Coordinate with EU to establish equivalence between UK mandatory minimum requirements and EU CBAM charges.
2. Initiate discussions with other countries considering the introduction of BCAs to determine their interrelation with UK mandatory minimum standards.
3. Identify trade partners most exposed to the introduction of UK mandatory minimum standards and inform them of impending regulation.
4. Inform FTA partners of plans to initiate BCAs.
5. Initiate consultations with developing countries to support their implementation of mandatory minimum standards (including the possibility of capacity-building support, directing some proceeds to climate finance, or exempting some countries from requirements).
6. Inform the WTO Technical Barriers to Trade Committee and engage with the Committee on Trade and the Environment, with the objective of smoothing implementation in the UK and encouraging other countries.
7. The UK can contribute to international work on defining international standards on carbon pricing and carbon accounting and methods to enable countries to identify products by embedded carbon. This might include further development of ISO standards and the HS system of trade classification.

### III. Explanation

Before elaborating on the steps above, some introductory remarks are provided.

#### **Introduction**

Reducing carbon emissions has typically been tackled in an indirect way, through performance standards that increase energy efficiency. Standards for embodied carbon have not been widely adopted anywhere in the world. The construction industry in the Netherlands is the first to implement and enforce standards for embodied carbon.<sup>204</sup>

#### *Purpose of Standards*

Having a clear a shared understanding of what is the purpose of the standards will be critical to their potential workability. If there is an attempt to meet multiple objectives with the same tool, there is a risk it will be ineffective at some or all of them. It is possible for standards to be an alternative to a BCA but also, if designed and implemented carefully, to complement them. Deciding and fixing their role before starting to draw them up can help to keep the task more manageable.

#### *Standards bodies*

As discussed in Section D, which organisation defines standards is important. There is very little expertise and capacity to specify standards for industrial processes in the public sector. Either it will have to be bought in or co-opted from the private sector. Objectivity and fairness are major issues in that different firms will have views which reflect their own processes and costs so ensuring industry-derived standards are not unfair needs an additional level of oversight.

#### *Key issues to consider*

What happens if a product does not meet a standard? Is it banned from the UK market? This has the potential to do short-term harm to UK firms if supplies of inputs are suddenly not available or there is ongoing uncertainty as to whether they will be allowed into the UK.

Is the standard intended to encourage gradual adjustment or force drastic and rapid change? The way in which standards are specified and implemented at one extreme gives firms time to make gradual changes which do not dramatically affect them, at the other extreme considerable disruption is caused but change happens more rapidly.

Do standards apply across the board, or target what is feasible and/or cost effective on a sector-by-sector basis? This is important because removing carbon from some sectors is currently far cheaper than others. Taxation has the advantage of incentivising removing carbon where it is cost effective to do so. Standards do not. If not carefully designed, standards can require far more expensive measures to comply in some sectors than others.

Do standards have other sustainability objectives or is it purely a carbon standard? The assumption has been here is that these are purely carbon-reduction policy tools.

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<sup>204</sup> F Varriale, [The other side of the coin: understanding embodied carbon](#) (RICS, 27.05.21).



Timing? Standards are a way of changing behaviour in future. Determining the time needed to allow adjustment before standards come in to force is likely to vary between sectors, but there may be a political imperative to introduce standards across multiple sectors simultaneously. Standards are unlikely to remain fixed in the long-term, however plotting out what is feasible is very difficult as it requires taking a view on where will technology go next. Some sectors have relatively stable technologies while others are changing fast.

How much adjustment is required? Is it to an existing technology or does it require major innovation? Targets which are too ambitious may end whole sectors of production in the UK. Some commodity products such as steel and manufactured products such as cars are particularly vulnerable.

It is worth considering whether UK standards should apply just to apply to goods and services sold in the UK or could also be imposed on UK exports. It is highly likely that they would be, but this may have the consequence of making some UK exports price uncompetitive in export markets against products from other suppliers, even if they have higher embedded carbon.

### **Domestic Steps**

#### *1. Determine sectoral scope and whether indirect and direct emissions will be included*

As with BCA, the likely scope will determine the complexity and difficulty of the task, however defining standards is a more onerous and expensive task than setting a border fee. To be effective standards need to maximise progress whilst not placing an excessive burden on industry adjusting. With border carbon fees the price mechanism incentivises adjustment where it is most cost effective, with regulation the standards chosen have to be appropriate to the specific product and the scope for reducing embodied carbon in it. If they undershoot, they do not generate enough progress or if they are too ambitious, they may have the unintended consequence of causing useful products to be banned. Setting targets for indirect as well as direct emissions will significantly add to complexity and may not have a big impact on outcomes if the firm exporting to the UK does not have a choice over source of energy or other inputs.

#### *2. Determine methodologies for assessing embodied emissions and setting standards*

The methodology for assessing embodied emissions is identical to that for BCAs, however there is also an additional task of defining what are appropriate minimum standards and implementing them. The majority of standards are gradually updated and refined over time. In this case, the starting point would be a blank sheet of paper. Finding a way for standards to generate approximate equivalence to the EU CBAM may not be possible. As a result, UK exporters to the EU may have two sets of compliance costs and some suppliers may either not wish to invest in compliance for the modestly sized UK market and decide not to supply the UK or pass on dramatically higher compliance costs to UK customer.

The body responsible for carbon standards will also need the bandwidth to find ways to measure compliance for a range of products simultaneously. The task would be large for a small group of energy-intensive commodities but it becomes vaster if there is an ambition to include energy and manufactured goods.

#### *3. Determine minimum thresholds/time periods*

It seems likely that whatever the level of ultimate ambition, standards will be applied gradually. It is unlikely that government has the capacity to develop them for many sectors in parallel even if industry groups are providing advice. UK importers and their international suppliers are also likely to seek adjustment periods.

It would impose considerable costs on UK firms and consumers if “trailblazing” standards are set. It seems more likely that modest minimum standards will be set at least initially. One possible approach is setting a minimum standard and demonstrating what more efficient looks like, rather like the EU appliance efficiency ratings for example. The next step is laying out a plan to changing the minimum standards over time. Standards need to be defined and measured against an absolute level, i.e. benchmarks must be set.

There are numerous options for potential benchmarks. One option is measuring embodied carbon emissions for UK production of a given product and basing the benchmark on that, a more ambitious target would be to determine what is feasible as an improvement over the initial baseline. The determination of feasible progress needs to be based on evidence as to what is practical rather than aspiration.

If it is not possible to calculate a benchmark, it is not meaningful to set standards, so it is critical to progress in a standards-based system. Once levels have been decided their duration becomes the next issue. Business craves certainty so it can make investment decisions based upon “fixed goalposts.” Standards should be fixed for specified time periods and announced several years before they come into force to allow adjustment.

#### *4. Determine how standards will be applied to exporters*

Countries exporting goods to the UK do not have carbon reporting systems so the only possibilities for assessing compliance are private sector reporting and auditing or UK government auditing of reporting. There will also need to be a UK standards system, an advice service and mechanism for informing and possibly punishing non-compliance.

### *5. Decide how compliance will be assessed*

Some form of compliance checking will be needed. At the weakest it could be voluntary reporting, however that will largely make the standard optional. Compulsory reporting will require some form of checking of what has been reported. This might take the form of spot checks, but unless the attached reporting is audited it can't be taken at face value.

Compliance with carbon standards is only fair if applied equally to all suppliers of a given commodity or product. The only way to do this is to apply uniform standards to all shipments regardless of origin. It may be possible that verification of compliance can be provided for a reporting period as well as on a shipment-by-shipment basis

### *6. Determine how border controls will be imposed on commodities that have to meet mandatory minimums*

To speed flow of goods across borders importers might be able to declare compliance supported by appropriate paperwork. If spot checks suggested paperwork was inaccurate there might be a potential liability on the importer. However, this kind of uncertainty might lead to some firms exiting the UK. If exporting countries develop carbon accounting, some form of mutual recognition agreement would overcome this risk.

In a standards-based system, if a product does not comply to UK standards it is hard to see how it could be admitted to the UK. There is then a risk of commodities being stuck on ships or in customs warehouses. A workaround to this might be that a supplier is allowed to continue to supply to the UK while it proves compliance, however if non-compliant imports are allowed on a general basis, standards rapidly become voluntary targets rather than mandatory minimums.

### *7. Determine how mandatory minimum standards will interact with the UK ETS.*

Standards would need to be applied domestically as well as on imports. This raises the risk that UK firms are required to comply but importers cheat, leading to a decline on UK production.

While standards could in theory replace the ETS as a tool to drive carbon out of the economy they go about the task in very different ways. Standards would need to be industry specific to be meaningful. As such they would not replace its market mechanism which is intended to facilitate de-carbonisation at least cost. It seems more likely that the two would co-exist.

It is less clear whether they would be applied to exports. There is a strong case to do so if embodied carbon standards emerge in export markets. If they do not, the issue becomes whether the UK feels it needs to ensure that its production meets its standards wherever it is used. Industry views are likely to vary between sectors depending on whether this imposes costs on them that their competitors do not face, or it can be turned to their advantage.

## *8. Public engagement and impact assessment*

Ideally impact assessment work should be started at the very beginning of policy development and include impact on prices, competitiveness and poorer groups in society. It is intended to be an objective assessment of what a policy is intended to achieve and identify its likely impact on key stakeholders, and in particular on vulnerable groups in the UK and internationally.

### **International steps**

#### *1. Coordinate with the EU to establish relationship between UK mandatory minimum requirements and EU CBAM charges (and other requirements)*

It would be far harder to establish equivalence between a standards-only system in the UK and a market-based system in the EU rather than with a UK BCA (with or without a standards system).

#### *2. Initiate discussions with other countries considering the introduction of BCAs or standards regimes to determine their interrelation with UK mandatory minimum standards*

As more countries consider ways to ensure commonality of carbon regime between domestic production and imports, there will be a big incentive to find ways for mutual recognition and or co-existence between regimes with the ultimate goal of a single global carbon policy framework. This is likely to be a long-term challenge, dominated by the actions of the biggest trading blocks.

#### *3. Identify trade partners most exposed to the introduction of UK mandatory minimum standards and discuss the potential new regulation with them*

Many exporters to the UK will gather information directly from the UK government. Countries are expected to engage with trade partners who are likely to be affected to gather their views and listen to their concerns and, where appropriate, modify aspects of implementation.

#### *4. Consult FTA partners of plans to implement standards*

Trade barriers affecting sensitive commodities such as steel and possibly manufactured goods will cause concerns for trade partners. Where these kinds of issues cannot be “smoothed out”, there is a risk that existing trade agreements can limit scope for implementation. Standards that apply to domestic producers as well as exporters are not likely to cause such difficulties.

#### *5. Initiate consultations with developing countries (including the possibility of capacity-building support)*

Some developing countries may find the process of adjusting to new UK standards very problematic and need support in implementation of measures to meet mandatory minimum standards. Possible measures include technical assistance, directing some proceeds to climate finance, or even exempting some countries from requirements. If standards are to have any credibility, there is less of a case for exempting developing countries than there is for giving them “tariff free access” to UK BCA.

*7. Inform the WTO Technical Barriers to Trade Committee and Committee on Trade and Environment*

Via the WTO processes, the UK can engage with numerous trade partners to demonstrate the legality of a policy proposal and address their concerns before they escalate into disputes. If the standards are applied to domestic production as well as imports, it should not be seen as a trade barrier. The WTO Committee on Trade and Environment and countries engaged in the Structured Discussions on Trade and Environmental Sustainability are fora where countries with an active interest in developing policies of this kind exchange views. Policy development is likely to be relatively mature before countries like the UK present their proposals. There may be some scope for being seen to take on board views from other countries, but fundamental changes are unlikely at this stage.

*8. Consider the UK contribution on defining international standards on carbon pricing and carbon accounting and methods to enable countries to identify products by embedded carbon*

This might include further development of ISO standards and the HS system of trade classification. If the UK commits to a standard based approach to embedded carbon, it has a strong incentive to make it easier for it to function. International standards and making trade data more specific on carbon content are areas which would help the UK to implement its chosen policy and may encourage others to take a similar approach.

#### 4. Scenario 3: Extend UK ETS to imports of goods covered by ETS

The two options discussed so far or some combination of them are not the only conceivable outcomes. Extending UK ETS to imports of goods covered by ETS is another. This would extend the pool of firms needing to buy permits to cover emissions made outside the UK for goods consumed within the UK. There is a big question as to how this could be made to work. The ETS is not currently liquid enough to allow this, but could be revised to make it possible, alternatively a secondary market could be set up. Whether this would allow an outcome close enough to the EU ETS to allow some form of mutual recognition is unclear.

From an organisational perspective, the steps needed to make it work are likely to be fewer than those required to set up a UK BCA and dramatically simpler than a standards-based approach. It has the same compliance issues for accounting and auditing but avoids the risk of different carbon costs for imports and domestic production.

#### 5. Concluding remarks on the route map

Some concluding remarks on practical steps to implementing border carbon adjustment or embodied emissions product standards include:

- Nothing can be implemented without political support and technical expertise, so progress on Scenario 1 or 2 is only possible with a solution acceptable to all key players, inside and outside government.
- Both BCA and standards approaches pose some challenges to implementation but standards appear to be more difficult to implement successfully.
- The option chosen has to be practically implementable. This constrains the options realistically available.
- There is no cost-less option. There are implementation costs to government and compliance costs to business. However, as outlined in Section D, doing nothing also has costs.
- Anything which is seen as discriminating against importers will generate considerable international attention.