

Creating lead markets for green industrial products

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Key messages

- The market for green and circular industrial products is still in an early phase of development.
- Governments have a range of policy measures at their disposal to support the creation of markets for green industrial products.
- Green public procurement, carbon contracts for difference, and carbon border adjustment are three measures currently receiving a lot of attention.
- Collective action on these measures and others can send stronger demand signals but require considerable work to establish common standards.
- Individual and collective action must be complemented by infrastructure development if the business case is to be made.

Introduction

Several pilot and demonstration projects around the world are assessing the commercial and technological viability of “green” production processes, particularly in the steel, cement, and heavy transport sectors. At this early stage, catalysing demand and creating [lead markets](#) for green industrial products plays a crucial role in demonstrating to companies and investors the business case for scaling up these projects.

Until cost reductions from learning and economies of scale are achieved, green industrial products will remain [more expensive than carbon-intensive ones](#) because of the higher costs of low-carbon production processes, such as hydrogen-based direct reduction in steelmaking, use of oxyfuels and carbon capture and storage in cement production, or electrification and the methanol-to-olefins process in the chemicals industry. Companies and investors are concerned about the impact of increased costs on market competitiveness, and they often look to governments to put in place [policy measures](#) that can help catalyse demand and create lead markets for green industrial products.

In this brief, we review three policy measures currently receiving a lot of attention and consider how collective action among countries can send a stronger signal to businesses and investors.

Three policies for creating lead markets

Here we look at three policy measures for supporting the creation of lead markets: green public procurement, carbon contracts for difference and carbon border adjustment.

Green public procurement

Use of green public procurement (GPP) to help develop a market for green commodities is a well-established industrial policy measure. Public entities have sizable buying power for goods and services, making them an influential driver of demand. Indeed, public procurement accounts for an average of [12% of GDP](#) in OECD countries, and up to [30% of GDP](#) in many developing countries.

- GPP can cover a wide range of carbon-intensive sectors and large infrastructure, such as roads, buildings and railways, public transport, and energy. In particular, government construction projects can be substantial in size, value and emissions impact, so GPP measures have the potential to make a significant impact on [emissions from construction](#) (including in steel and cement production).
- GPP policies can take several forms. For instance, governments may impose [minimum content regulations or preferential buying obligations](#) for low- and zero-carbon steel and cement, subject to a benchmark for greenhouse gas emissions. Or GPP can be employed on a voluntary basis or combined with quota schemes for green paper and pulp, iron and steel, aluminium, cement, pharmaceuticals, or to restrict the use of products with a high footprint. Indeed, as part of a GPP measure (or separately), complementary legal quota schemes may be adopted to compel the use of products with zero or lower embodied emissions (or restrict products with a high carbon component).
- GPP implementation requires access to comprehensive information on embedded emissions and a clear methodology for assessment. This can be done via tracing of the carbon footprint of the products in question or through tradable green certificates. Currently, there is no certification or “guarantees of origin” system for green steel, cement, chemicals, or other relevant industrial products. Green steel and cement producers may consider developing methodologies for green certificates to facilitate the most cost-effective production and trading of green products. Governments may consider setting an annual quota for certified green products in order to support the market for trading green certificates.

Carbon contracts for difference

Interest is growing in [carbon contracts for difference \(CCfD\)](#), a proposed policy measure aimed at reducing the price volatility in Emissions Trading Schemes (ETS) and providing more long-term reliability for investors. ETS are mechanisms for trading greenhouse gas emissions allowances. The cost of carbon is determined by the overall cap on emissions and subsequent market price for each allowed ton of CO₂ below that cap.

- **In a CCfD scheme, a government guarantees producers a fixed CO₂ price (a “strike” price) for the length of the project.** In doing so, the government agrees to pay a subsidy equal to the difference between the strike price and the CO₂ price in the ETS (the “benchmark” price). As the market price of carbon within the ETS rises over time, the government’s subsidy will fall to zero. Similar to feed-in tariffs, there are a number of ways that the strike price could be determined: it could reflect only the incremental capital and operating cost of new, low-CO₂ technologies or it could be set through a competitive tendering system.
- **CCfD may be an alternative to free carbon allowances within an ETS**, which are typically allocated to carbon-intensive sectors to address the problem of [carbon leakage](#). Carbon leakage happens where higher production costs lead firms to relocate production to jurisdictions with less stringent climate regulation.

Carbon border adjustment

The concept of [carbon border adjustment](#) is gaining increasing attention as a way to avoid harming global competitiveness of firms that are required to limit their emissions through national or regional taxes. Carbon border adjustment typically refers to import levies or taxes imposed by countries implementing stringent carbon policies on goods imported from countries with lower emission reduction requirements. It aims to impose the same economic burden on emissions, thus resolving the problem of carbon leakage, which affects heavy industries in particular.

- **A carbon border adjustment could be adopted as a carbon tax** on selected imported and domestic goods. It could also take the form of a new customs duty, or a tax on imports, or an extension of the ETS to imports. If adopted as a [carbon-added tax, a border adjustment](#) would be set up in a similar way to value-added tax (VAT), but would tax the carbon embedded in products, rather than value. A carbon-added tax system requires benchmarks for products that reflect the CO₂ content of the product. And, similar to the VAT system, a “destination principle” could be adopted for international trade – that is, countries could agree that carbon-added tax would be retained by the countries in which products are sold.
- **Carbon border adjustments that are designed to be implemented in a transparent and predictable way** will provide investors with regulatory certainty and greater incentives to industries to decarbonize. In some sectors, carbon border adjustment may also make it [more competitive](#) for companies to take measures that are more carbon efficient. For example, European chemical producers may cut their reliance on Russian crude oil and import more from Saudi Arabia, where extraction leaves a smaller carbon footprint.
- **An alternative to carbon border adjustment is a consumption charge** that reflects the CO₂ component and material efficiency of steel, aluminium and cement production, based on an emissions benchmark. A consumption charge would only be valid if a CO₂ price were not included in the final producer price to avoid double counting in the final cost of the product. The revenues collected can be directed to low-carbon investments, for instance via [national trust funds for climate action](#).

Policy experimentation and collective action

None of the measures alone is a silver bullet. Nor would they be effective for all sectors or across different geographies. It may be necessary to experiment with policies in order to identify the most appropriate measures at national and regional level; and international collective action may be necessary to build momentum within global industry value chains.

Policy experimentation

- **A mix of policies adapted to specific circumstances** are needed to support the creation of lead markets. The precise mix for any sector or geography will depend on a range of factors. A recent study evaluating [policy measures to commercialize green steel](#) in the EU highlights how different measures face different trade-offs in terms of effectiveness, political feasibility, efficiency and fairness.
- **Decision makers need to strike a delicate balance** between putting in place an incentive framework for scaling up green industrial products and overburdening government budgets, especially in emerging economies. For example, continuing with free allocations within an ETS, alongside CCfDs and a carbon border adjustment, may lead to public resources being used when markets and private finance could achieve the objective instead. At the same time, removal of these free allowances without a mechanism to address the risk of carbon leakage may put at risk the financial capacity of industries to switch to more expensive low-carbon energy, such as hydrogen. Therefore, some sectors recommend that the free allowances should be gradually reduced, [or simultaneously applied](#) with a border measure. This can in principle be done by deducting calculated carbon footprints from carbon duty.

- **Experimentation may allow policymakers to identify trade-offs** between new and existing policy instruments, given that to date carbon border adjustment and CCfD are largely untested. Carbon border adjustment entails uncertainty over the administrative and methodological complexities involved in calculating the CO₂ component of products, the potential reaction of trading partners, and the risk of WTO non-compliance. CCfD and consumption charges could [substitute a carbon border adjustment](#). The CCfD policy option is generally supported by the industry as a financial mechanism to provide a [long-term guarantee for a fixed carbon price](#) between governments and companies. And a CCfD measure could be awarded as part of a GPP tender. In terms of its compatibility with ETS, CCfDs should ideally ensure that the projects subject to the measures, can [sell their free allowances](#) at the market.
- **CCfDs can be adopted at a national or regional level**, and awarded solely on a [project-specific basis](#) to avoid these contracts being traded or fulfilled by a portfolio.

The power of collective action

In nascent markets for low-carbon products and materials, coordinated collective action through alliances and clubs of public and private buyers can significantly amplify the impact of any particular measure, or set of measures. The influence and bulk purchasing power of these alliances and clubs can have a tremendous impact on efforts to bring about a stable and reliable market for green industrial products. These efforts include:

- **Platforms designed to create a competitive and strong manufacturing value chain have brought proven benefits** in terms of regulatory insights, market intelligence, business development, and de-risking opportunities. Examples include the [European Battery Alliance](#) and the [European Clean Hydrogen Alliance](#) in the EU, and the [Renewable Energy Buyers Alliance](#) in the US. These alliances bring together many stakeholders from non-profit organizations, industry, innovation and academia from across the value chain (e.g. mobility, energy providers, transmission and distribution and other sectors). Collaboration of this kind is crucial for creating markets and catalysing demand for green products. The profound changes to and development of infrastructure that is required to reduce carbon intensity of energy supply and capture process emissions cannot be achieved without it.
- **“Carbon clubs”** have also been proposed as a mechanism for ring fencing markets for higher cost green industrial products. Under carbon club agreements, governments would provide [an enabling regulatory environment](#) for green steel production via one, or a mixture, of the measures (such as GPP or CCfD), and companies would invest knowing that a favourable market for a given product or material exists. For example, a carbon club for [green steel](#) could involve a green steel producer entering into a long-term relationship with a car maker. The car maker would then can pass the cost of green steel down to consumers for whom the additional cost would only be a small part of the price of the car. Carbon clubs [can be formed](#) as a result of convergence of (or a formal link between) national systems of several countries or regions that have established a carbon-pricing system. [Convergence of ETSs](#) can help shift the world toward a single, global carbon price and eliminate the need to adopt policies to address real or perceived competitiveness or carbon leakage considerations. While this may, on the one hand, carry the risk of trade wars and the separation of world trade, on the other, it could provide incentives to other jurisdictions to implement carbon markets.
- **A procurement alliance between a coalition of countries may be more successful** in addressing issues around international competitiveness than nations taking on this challenge alone, and in catalysing large-scale demand for green products. Given the regional and global nature of many heavy industry value chains, GPP policies in a single nation may be insufficient to catalyse transformation across the sector. An industry transition procurement alliance could overcome this challenge but would require significant effort. Such a shared approach would need agreement and regulation that encompasses [comprehensive terminology](#), the quantity, low-carbon threshold/standard for production installations

based on their full life-cycle emissions performance, process of allocation of certificates, monitoring, reporting, verification and compliance mechanisms.

Conclusions

There is growing interest in a number of policy measures to create lead markets for green industrial products – such as carbon contracts for difference, carbon border adjustments or procurement alliances. However, these measures are yet to be tested in the context of industry transition. It is not yet clear how effective they would be in spurring industry transition in a way that ensures heavy-industries [maintain competitiveness](#), preserve decent jobs and contribute to economic and social development at national and regional levels.

Collective action on these measures can send strong demand signals but require considerable work to establish common standards. Moreover, having buyers willing to pay a premium for green industrial products and services is not the only piece of the puzzle. Policies to catalyse demand need to go hand-in-hand with efforts to create an enabling environment that supports the business case for industry transition.

As we continue to build momentum on the industry transition in the run up to COP26, we encourage knowledge exchange on design of policy measures, establishment of alliances and joint commitment around green public procurement and development of benchmarks for green industrial products.