

GREENING CONSTRUCTION

The Role of Carbon Pricing

BRIEFING NOTE



CARBON PRICING
LEADERSHIP COALITION



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About

This briefing note is a summary of the Greening Construction: The Role of Carbon Pricing report published by the Climate Business Department of the International Finance Corporation (IFC) and the Carbon Pricing Leadership Coalition (CPLC).

IFC—a sister organization of the World Bank and member of the World Bank Group—is the largest global development institution focused on the private sector in emerging markets. We work with more than 2,000 businesses worldwide, using our capital, expertise, and influence to create markets and opportunities in the toughest areas of the world. In fiscal year 2018, we delivered more than \$23 billion in long-term financing for developing countries, leveraging the power of the private sector to end extreme poverty and boost shared prosperity. For more information, visit www.ifc.org

CPLC is a voluntary partnership of 33 national and sub-national governments, over 162 businesses from a range of sectors and regions, and upwards of 76 strategic partners representing civil society organizations, NGOs, and academic institutions that are working with each other to identify and address the key challenges to successful use of carbon pricing as a way to combat climate change. For more information, visit www.carbonpricingleadership.org

Read the full Greening Construction: The Role of Carbon Pricing report at: www.ifc.org/climatebusiness/greeningconstruction

For additional background on this topic, read the Construction Industry Value Chain: How Companies Are Using Carbon Pricing to Address Climate Risk and Find New Opportunities report at: <https://www.carbonpricingleadership.org/news/2018/10/24/report-launch-carbon-pricing-in-the-construction-value-chain>

INTRODUCTION

The Greening Construction: The Role of Carbon Pricing report (2019) examines how to design effective carbon pricing mechanisms for the construction industry.

This energy-intensive sector is the world's largest consumer of raw materials and is responsible for 25 percent to 40 percent of global carbon-related emissions.¹ Demographic trends and the expected increase in future construction demand underline the need for the industry to do more to address its contribution to climate change. The world's population is predicted to reach nearly 10 billion by 2050, with the majority expected to live in urban areas.² This will increase demand for buildings and infrastructure; some estimates suggest that 75 percent of the infrastructure we will need by 2050 must still be built.³ Ensuring that this construction is green will be critical to achieving the Paris Climate Agreement target of limiting global temperatures from rising 2oC above pre-industrial levels by the end of the century.

Putting a price on carbon can be an effective way for governments and organizations to plan for a low-carbon future. Carbon pricing attributes a cost at source to the negative impacts associated with the release of greenhouse gases. It aims to create an economic signal that influences sectors and supply chains to alter their behavior in favor of lower-carbon choices.



The construction industry

The construction value chain (CVC) is a complex mix of life-cycle stages, delivery models, and stakeholders. Large projects with long life cycles and multiple actors can be highly fragmented, which often leads to a lack of accountability or incentives to consider climate change impacts. These constraints make the application of carbon pricing mechanisms to construction particularly challenging.

Existing definitions of the CVC do not capture the full extent of value chain actors who have control and influence over carbon emissions (such as users, financiers, and contracting authorities), nor do they cover the full scope of life-cycle stages where carbon emissions arise. For the industry to effectively cut emissions, all these actors and life-cycle stages must be included in regulatory frameworks, especially those actors who can control emissions from the use and raw materials stages, which account for the majority of total project emissions. Figures 1 and 2 below illustrate the range of actors and life-cycle stages that inform carbon management along the CVC and must be brought within the ambit of an effective carbon reduction policy framework for the industry.

In addition to actors and life-cycle stages, project delivery methods have an impact on the effectiveness of measures to reduce emissions. Integrated approaches that maximize interaction and accountability between actors from all stages, such as the Design-Build-Finance-Operate-Maintain model, can incentivize all parties to maximize carbon reduction at each stage, ensuring that the overall project is delivered most efficiently.

Similarly, financing structures also influence carbon reduction, with owners who directly finance a project, such as in the Design-Build-Operate model, better able to prioritize carbon reduction and impose targets for contractors, operators, and managers to meet, than an owner does not finance or deliver a project.

Figure 3 outlines the various project delivery methods and financing models that the construction industry uses. Construction projects structured to better integrate actors and life-cycle stages for greater accountability, and those whose owners have greater control over priorities through direct financing, are better able to enforce measures that prioritize carbon reduction.

Applying carbon pricing mechanisms to the construction value chain

To date, carbon pricing has tended to apply to carbon-intensive production activities. In the CVC, this includes raw material extraction, product manufacture, and energy generation. However, this is ineffective at influencing construction design, which is where carbon emissions are locked in for the duration of an asset's life.

The study findings suggest that there is no single fix. However, if carbon prices were increased even only to “midpoint” levels of \$25/tCO₂e, then project costs could potentially change behaviors in the CVC in pursuit of cost savings. This might lead to interventions by polluters to bring down their emissions as well as downstream CVC actors, including clients, designers, and users.

FIGURE 1: CVC ACTORS

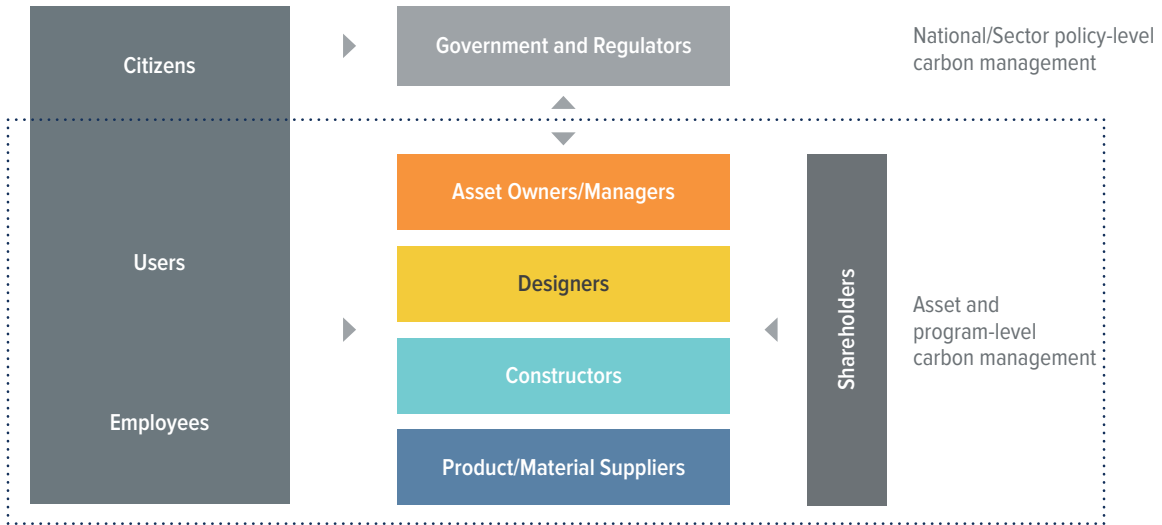


FIGURE 2: LIFE-CYCLE STAGES OF THE CVC

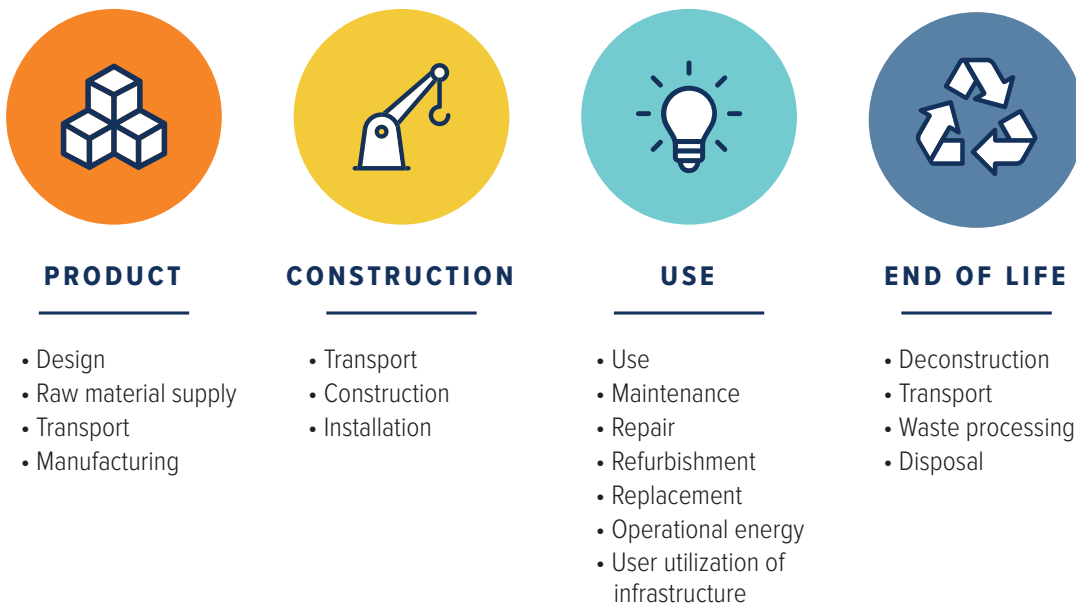
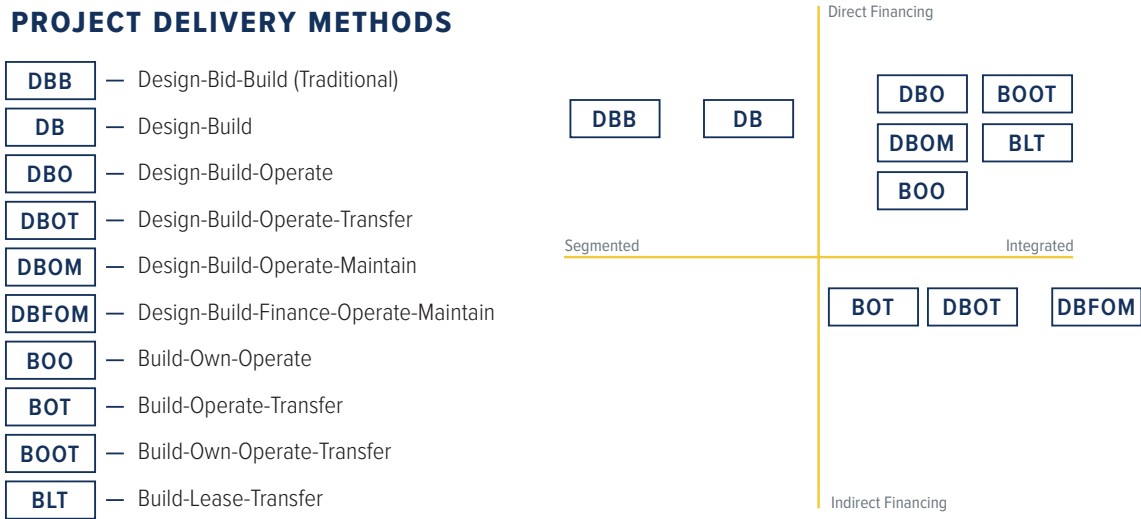


FIGURE 3: PROJECT DELIVERY METHODS FOR CONSTRUCTION PROJECT



Many actors at the early stages of the project (funders, developers, and designers) retain significant power and influence over a project’s whole-life carbon emissions by defining material supply chains, operational, and in-use carbon emissions outputs. As Figure 4 illustrates, to reduce total emissions associated with the whole life cycle of an asset, an effective carbon pricing mechanism needs to influence the early stages of project-making (such as funding, terms of reference development, and design), as well as the use stage of the project. Carbon pricing mechanisms applied at these two junctions have greater influence over more actors along the CVC, and are better able to target the stages that account for the most life-cycle emissions.

One way of capturing CVC emissions in a more complete way – including early stage project-making actors – is to apply carbon pricing mechanisms to the entire life cycle of constructed assets.

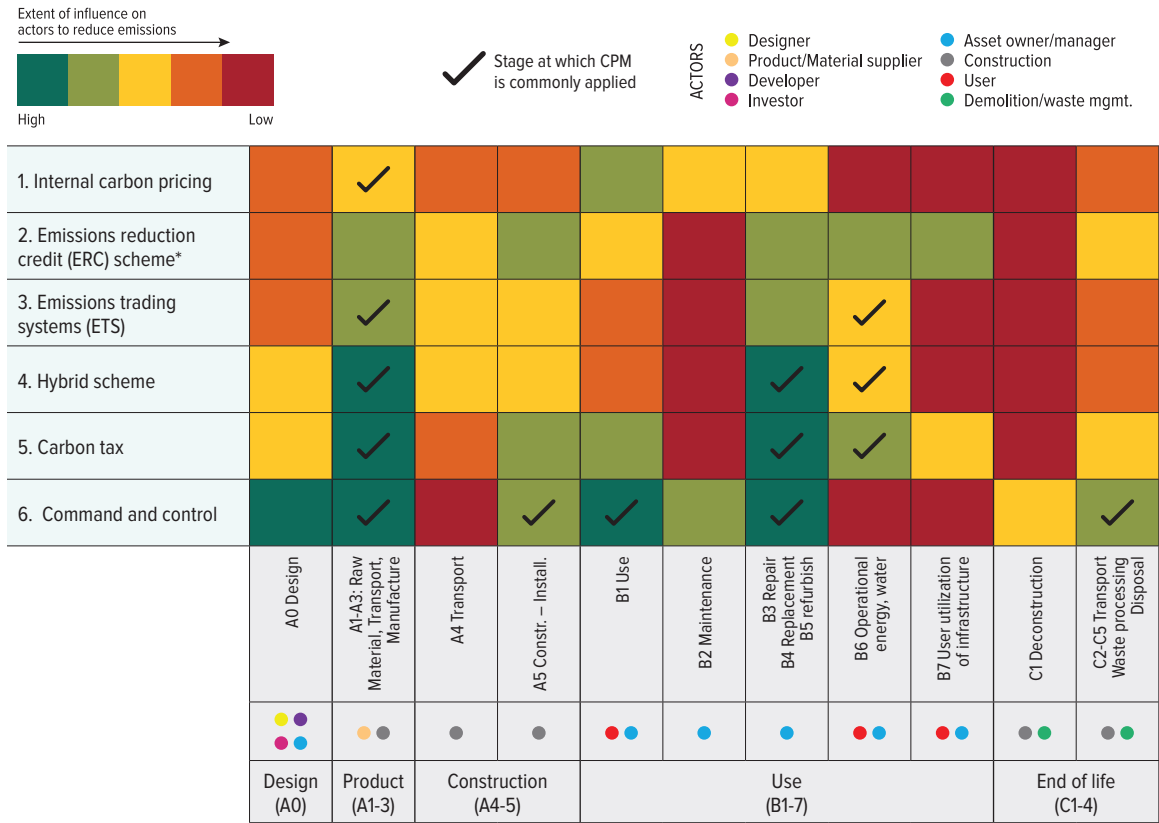
Of the existing carbon pricing mechanisms applied, hybrid models that combine elements of quantity-based emissions trading systems and price-based tax instruments are likely to provide the flexibility needed to maximize the capture of emissions, accommodating variances in asset class, scale, project

delivery method, and market type. Hybrid models could also help to minimize price volatility, which would appeal to investors and governments.

When developing carbon pricing mechanisms, governments and companies must carefully weigh the potential impacts against the benefits, providing solutions to help those who cannot easily alter their behavior while challenging those who can through stricter targets and penalties. Schemes must engage and align with their regional and international counterparts to create a more level playing field, share learning, and minimize threats to competitiveness.

Building momentum for a cohesive, industry-wide approach to reducing emissions across the value chain will require collaboration with various stakeholders. CPLC’s next step includes working with industry associations across sectors to advance the study findings, integrate them into their work, and encourage advocacy efforts by companies. In parallel, other policy drivers must be rolled out alongside carbon pricing mechanisms to promote sustainability in the construction industry, such as green building regulations and green procurement directives.

FIGURE 4: HEATMAP FOR CARBON PRICING MECHANISM IMPLEMENTATION ALONG THE CVC AND IMPACT ON BEHAVIOR



*An ERC scheme often requires the sustainability of the whole project to be evaluated, which is why a CPM is not placed on one particular stage.

ENDNOTES

1. World Economic Forum (2016), http://www3.weforum.org/docs/WEF_Shaping_the_Future_of_Construction_full_report_.pdf
2. UN (2017), <https://www.un.org/development/desa/en/news/population/world-population-prospects-2017.html>
3. Global Infrastructure (2014), http://resilient-cities.iclei.org/fileadmin/sites/resilient-cities/files/Resilient_Cities_2014/PPTs/A/A1_Tafur.pdf



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