



Sustainable
Markets
Initiative



VALUING CARBON IN PRIVATE MARKETS

April 2023

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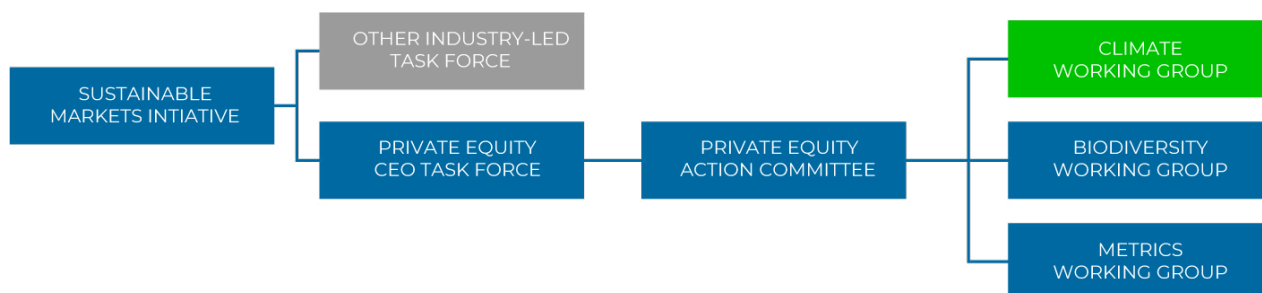
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BACKGROUND & ACKNOWLEDGEMENTS

The Sustainable Markets Initiative (SMI) was launched in 2020 at the World Economic Forum Annual Meeting in Davos by His Majesty King Charles III when he was The Prince of Wales. The SMI is a network of global CEOs across industries working together to build prosperous and sustainable economies that generate long-term value through the balanced integration of natural, social, human, and financial capital. These global CEOs see themselves as a 'Coalition of the Willing' helping to lead their industries onto a more ambitious, accelerated, and sustainable trajectory.

The SMI focus - for Nature, People and Planet - is at the heart of global value creation. This is evident through its Terra Carta, which serves as the mandate for the SMI and provides a practical roadmap for acceleration towards an ambitious and sustainable future; one that will harness the power of Nature combined with the transformative power, innovation, and resources of the private sector.


The Private Equity Task Force was launched in 2021 and is the first ever CEO-level private equity working group established to discuss ways the industry can effect change. It leverages expertise within each member firm across three priority areas: climate change, biodiversity and sustainability-related metrics.



This paper includes input from the climate change working group, a subgroup of the SMI's Private Equity Task Force. This paper addresses the consideration of incorporation of carbon into the investment decision-making process – taking into account the perspectives of private market participants, including Private Equity firms (also known as general partners 'GPs'), investors (or limited partners 'LPs'), and companies under the control or investment of GP's (known as portfolio companies). This paper is intended to serve as a first step to inspire new ways of thinking in our industry rather than a blueprint for us all to follow. However, it is our hope that over time, taking steps to value carbon would make us better investors, and make our industry more resilient. Throughout this paper, "carbon" is used to represent all greenhouse gases and carbon emissions equivalent.

CONTRIBUTORS AND THANKS



With guidance from 

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INTRODUCTION

Context

Climate change is increasingly becoming a global priority, with governments, industries, and investors embarking on the race to achieve net zero. According to a study done by the Global Markets Financial Association (GFMA) and Boston Consulting Group (BCG), around \$100 to \$150 trillion of investment will be needed to achieve net-zero emissions globally by 2050.

As capital continues to flow into climate enabling technologies and companies that need to transition, investors continue to grapple with an important question: is decarbonization value-accretive? Answering this question in an analytically rigorous way has been challenging for a simple reason. Historically, the cost and opportunity of carbon have not been priced into asset valuation—at least not widely and consistently—especially in private markets. That is starting to change.

In our inaugural guidance, the Sustainable Markets Initiative Private Equity Task force (PESMIT) teamed with BCG to develop a first of its kind framework that private markets investors can choose to use to consider incorporation of carbon, both cost and opportunity, into the entire investment decision-making process. As part of this guidance, we offer a framework, potential methodologies, and case studies to help illustrate how being proactive on carbon reduction can be good for business.

¹We use “carbon” as shorthand for all greenhouse gases (GHGs) through this paper.

BENEFITS OF INCORPORATING CARBON IN VALUATION

In one of our interviews with PESMIT members, the CEO of a leading firm posed an interesting question: if two similar assets come to market and one has made the effort to decarbonize but the other has not, which one are you willing to pay more for? While this scenario may sound like a hypothetical, it's already happening today.

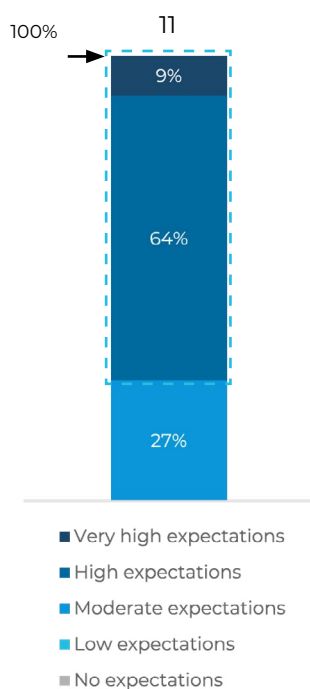
We also surveyed private markets leadership and CEOs as part of our work, many of whom said carbon is directly impacting their investment decisions. ~70% of respondents indicated that they have high or very high expectations of getting paid a premium at exit for proactive decarbonization of portfolio companies, highest in Energy, Industrials, and Transportation & Logistics sectors (Exhibit 1).

Conversely, ~65% of the surveyed firms have high or very high expectations of being penalized at exit for insufficient progress on decarbonization of a portfolio company. While expectations of penalty are slightly lower than that for a premium at exit, respondents believe they are likely to materialize in similar sectors (Exhibit 2). One firm has even mandated a 'carbon-adjusted valuation' be shown alongside a standard valuation due to a firm belief that carbon is an unpriced risk that is very likely to materialize in their 5-10 year hold period and will almost certainly impact a future buyer 10-15 years out.

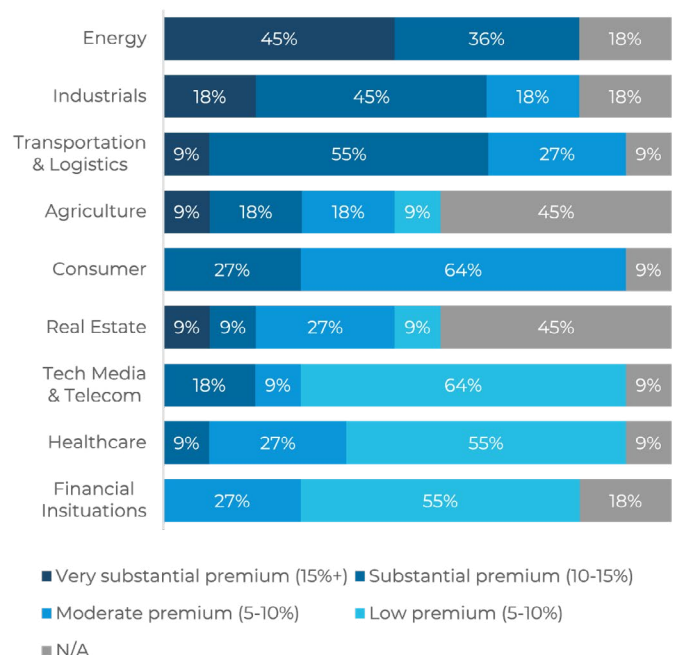
Exhibit 1:

~70% of PESMIT leadership respondents have high or very high expectations of a premium at exit for decarbonization, highest in heavy emitting sectors

To what extent do you expect to be paid a premium at exit for proactive decarbonization of PortCos? (n=11)



In which sectors do you expect to be paid a premium at exit for proactive decarbonization of a portfolio company and how much do you expect the premium to be? (n = 11)



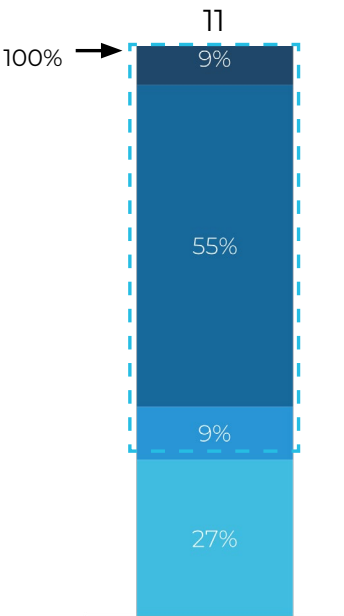
Source: PESMIT CEO Survey, Jul 28 - Aug 12 (n=11); BCG Analysis

Exhibit 2:

~65% of PESMIT leadership respondents have high or very high expectations of a penalty at exit for insufficient abatement, highest in heavy emitting sectors

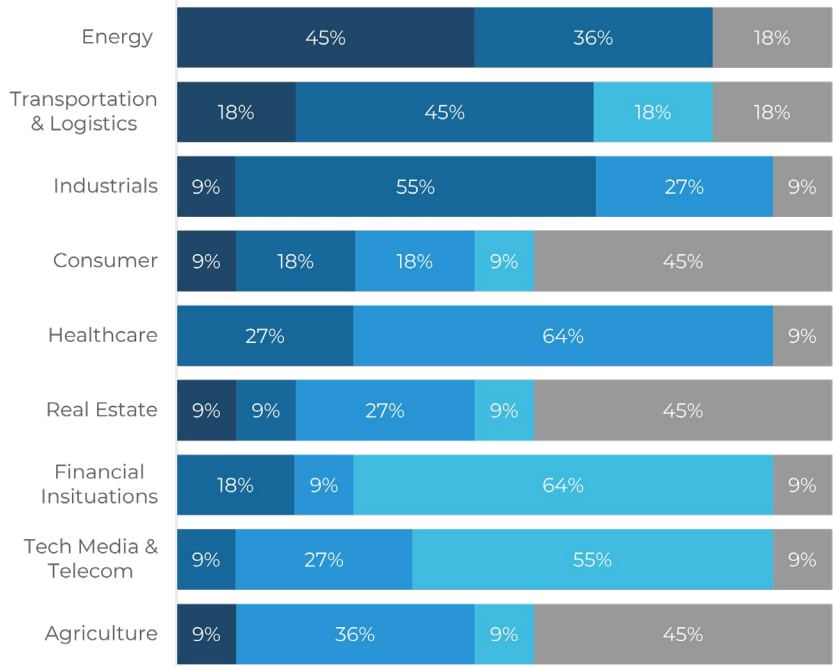
To what extent do you expect to be penalized at exit for insufficient decarbonization of PortCos? (n=11)

To what extent do you expect to be penalized at exit for insufficient decarbonization of PortCos? (n=11)



- Very high expectations
- High expectations
- Moderate expectations
- Low expectations
- No expectations

In which sectors do you expect to be penalized at exit for insufficient progress on decarbonization of a portfolio company and how much do you expect the penalty to be? (n=11)

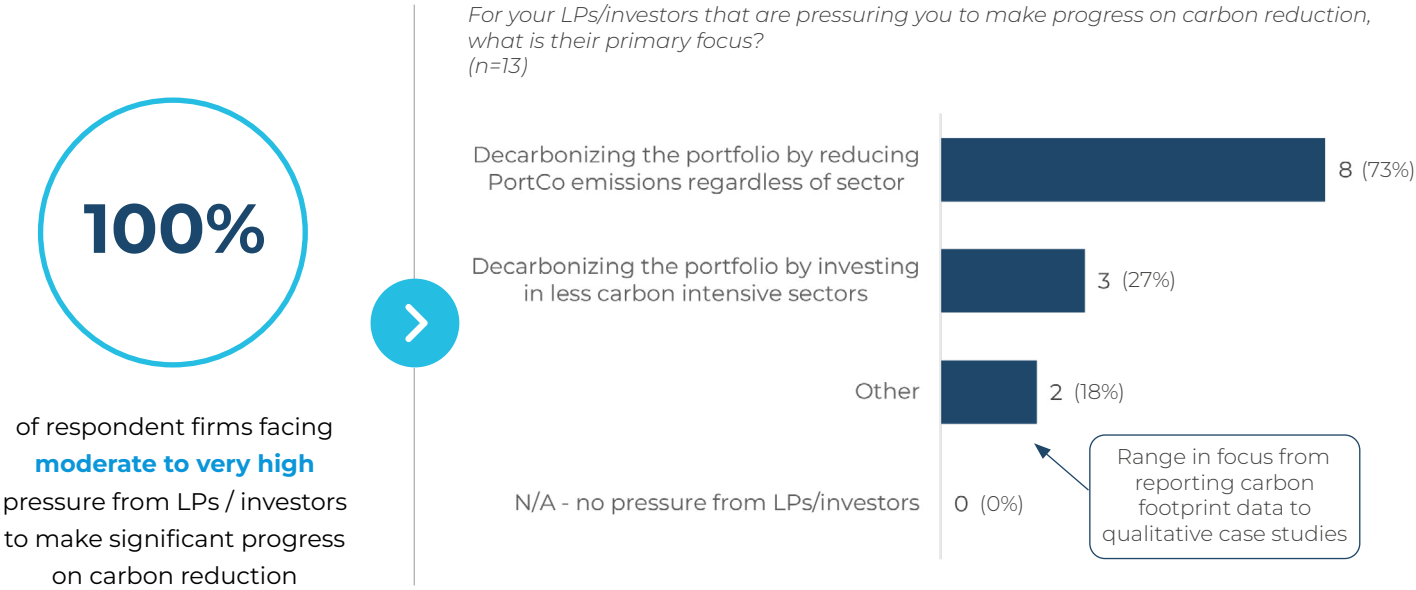


- Very substantial penalty (15%+)
- Substantial penalty (10-15%)
- Moderate penalty (5-10%)
- Low penalty (0-5%)
- N/A

Firms are already facing increased pressure from LPs to consider the impact of carbon pricing in their investment decision-making processes and value creation strategies. All firm respondents in our survey asserted they are facing moderate to very high pressure from their LPs / investors to make progress on reducing their carbon emissions (Exhibit 3).

Exhibit 3:

All respondents face pressure from LPs / investors to decarbonize, mostly around a thoughtful energy transition for all PortCos, sector-agnostic



Carbon is increasingly becoming like any other commodity in which the outlook must be well-understood across geographies and sectors to incorporate in investment decision making. The cost of carbon is already substantial in some geographies and sectors. For example, the second highest fossil fuel carbon tax is in Sweden, and the EU and California have well-developed emissions trading systems (ETs). While the cost of carbon is not imposed on companies in all geographies and sectors, this landscape is expected to change materially in the next few years. For instance, Indonesia and Austria are scheduled to implement an ETS and Israel and Malaysia are planning to develop regulated pricing mechanisms. (See Sources page).

The most advanced investors already see the writing on the wall that the cost of inaction will only increase, potentially exponentially. The costs of green raw materials like green steel have reached all-time highs with multi-year delays for delivery, carbon offsets have doubled in value in the last two years and are forecasted to quadruple, and carbon market prices in cap-and-trade schemes have also doubled recently and are likely to increase as demand far outstrips supply. Investors already know that carbon action is important but acting on carbon today is also a high NPV strategy. Ultimately, decarbonization is value-accretive, and incorporating carbon risks and opportunities into the entire decision-making process helps to mitigate risk and capture opportunity.

Source: World Bank (State and Trends of Carbon Pricing 2022)

CARBON VALUATION GUIDANCE

Guiding principles

The voluntary guidance assembles experience from PESMIT members, BCG's global expertise in working with leading private markets and Climate & Sustainability institutions, and other leading carbon market experts such as academic professors and climate coalition leaders. By focusing on carbon valuation at the investment level, it can be incorporated on top of other climate frameworks including TCFD. The guidance also builds on the existing work done by several sources including the Initiative Climat International (iCI), Principles for Responsible Investment (PRI), Glasgow Financial Alliance for Net Zero (GFANZ), International Energy Agency (IEA), and others (for more information on these sources, please refer to the sources page).

The guidance focuses on how private markets investors can value carbon and integrate it throughout the investment lifecycle as well as what can ease industry players' independent adoption of similar principles. To help ensure our guidance is practical and actionable, we have grounded it in five principles:

- **Bias towards simplicity and action:** Working to ensure actionable, practical guidance for private markets to easily understand and utilize.
- **Aligns with established investment methodologies:** Embedding guidance in existing processes, including diligence and portfolio management, enabling easier adoption.
- **Complements other firm climate commitments:** Is compatible with or additive to other commitments firms are making or required to make (e.g., TCFD).
- **Accelerates carbon-related value creation:** Providing a way to accelerate energy transition vs. disincentivize investment into heavy emitters.
- **Adapts to current data environments:** Enabling flexible implementation with expectation that carbon-related costs and benefits will become easier to quantify over time.

We acknowledge that every private markets investor will make their own choices on how to address specific components of the guidance. The materials provide a framework and tools firms can consider adopting as a first step and are not intended to be prescriptive. Furthermore, we recognize that several of the framework components may be hard to initially measure. As more funds adopt these building blocks, we expect the ability to measure and benchmark to become progressively easier with time.

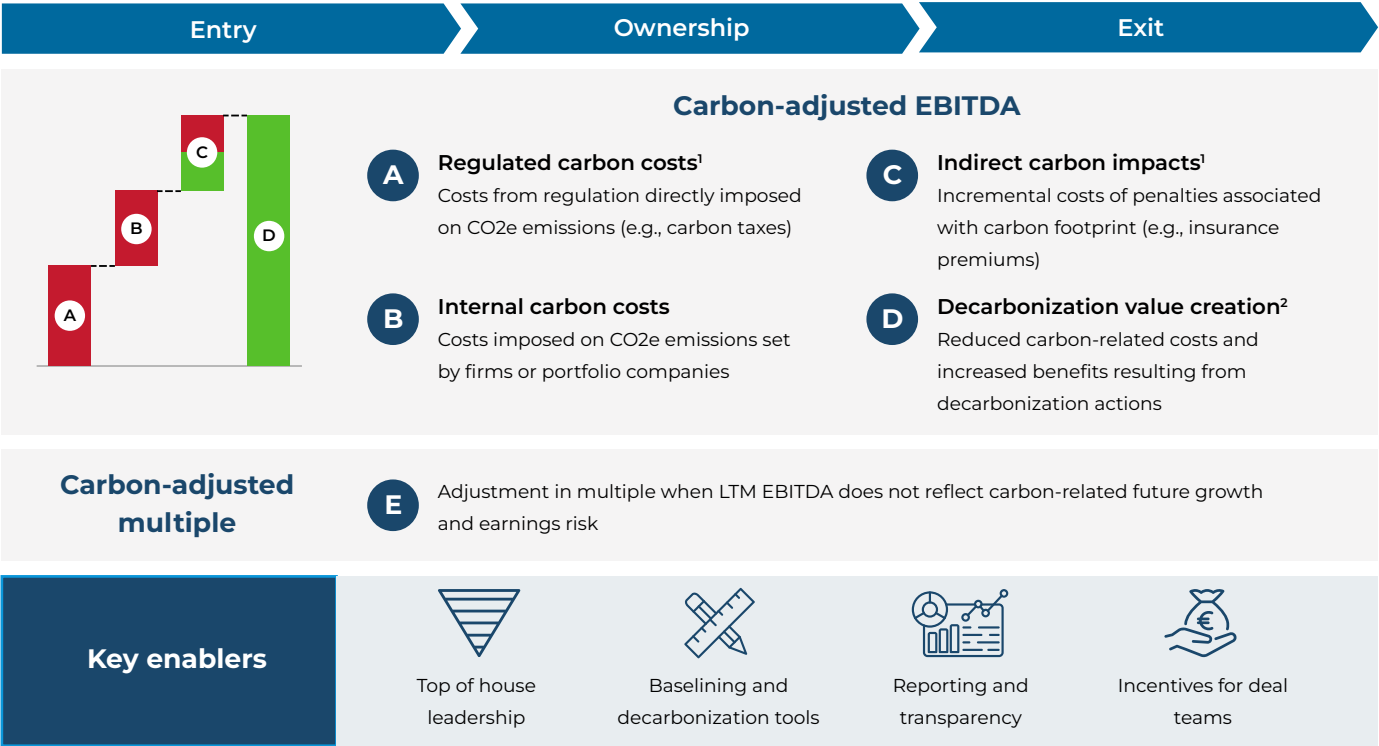
Carbon valuation framework

To integrate carbon into investment decision-making and valuation, new inputs will need to be added to existing valuation models and processes to help make carbon an explicit consideration in valuing any business. Carbon has two primary impacts: on EBITDA and multiple.

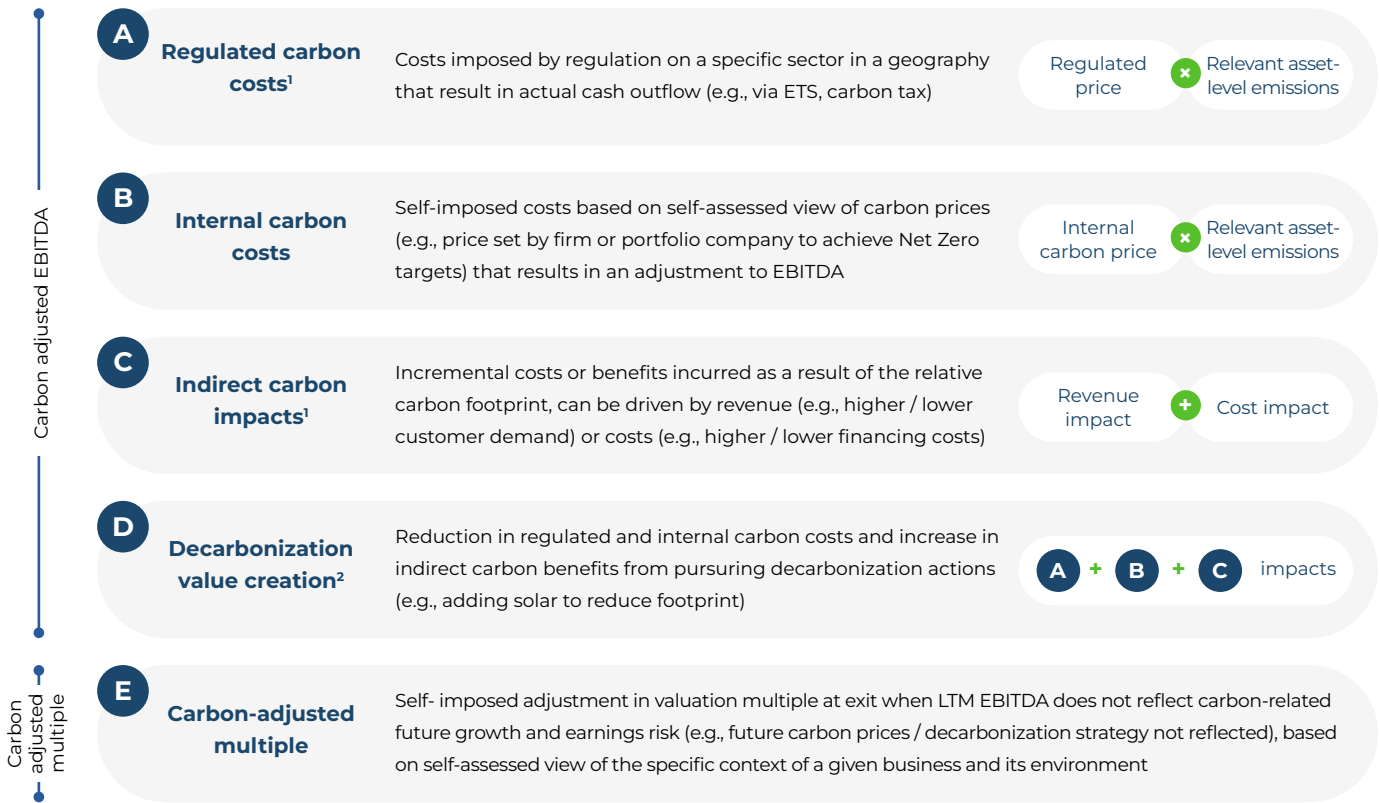
Within these components, there are five parts (labelled A to E) which are inputs to the valuation. Each one is designed to introduce an incremental consideration for investors to examine. It is up to the investor to determine which inputs matter and why, of which will vary greatly by geography and sector. Some of these components are already embedded into financial estimates today while others would need to be considered.

Several enablers would also be needed for widespread industry adoption and underlie the valuation inputs: prioritization by management, appropriate baselining and decarbonization tools, reporting and transparency, and incentive alignment at the deal team level.

Overview | Our carbon valuation framework can be applied to different investments and considers potential EBITDA and multiple impacts



Overview | Carbon valuation framework components



Carbon-adjusted EBITDA

There are 4 primary components that may impact carbon-adjusted EBITDA, some of which are already reflected in EBITDA today:

1. **Regulated carbon costs:** These costs are imposed by regulations or compliance markets, often on a specific sector and geography, and result in actual cash outflow impacting business profitability.

Today, there are several markets with regulated carbon pricing schemes. For example, the EU ETS covers 40% of EU emissions and spans across industries such as aviation, power, and fossil fuels. Current costs are already reflected in EBITDA today, but firms should also consider gradually integrating forward curves (e.g., forecasted carbon allowance prices, planned carbon tax rate increases) and pass-through rates into financial estimates.

2. **Internal carbon costs:** These costs are driven by the firm or portfolio company's internal / proprietary view of carbon prices. Given not every asset operates in a market with regulated pricing, firms or portfolio companies may choose to self-impose an internal carbon price on emissions. Even in markets with regulated pricing, a firm or portfolio company may choose to impose an incremental price to capture their view of the true cost of carbon. This internal carbon price may be driven by a belief that a future carbon cost is expected to materialize (e.g., via firm-specific net zero commitments requiring the purchase of carbon credits / allowances).

While internal carbon costs do not result in any actual cash outflows today, they can help direct current investment decisions. The internal carbon price is ultimately a fund or company decision, and can be informed by regulated market pricing, voluntary market pricing, peer internal carbon pricing, or scenario-based pricing to get to net zero or another target.

3. **Indirect carbon impacts:** Depending on a company's carbon emissions profile, a company may incur additional costs or benefits driven by the behaviors of other market participants (e.g., customers, lenders, employees, etc.). The impacts can be on both revenue (e.g., change in demand from sustainability-minded customers) and costs (e.g., change in insurance and financing rates).

Indirect carbon impacts are often already reflected in EBITDA today. However, they can be difficult to quantify and during diligence, are often considered qualitatively. Over time, as data availability improves, it will likely become easier to model the indirect carbon impacts.

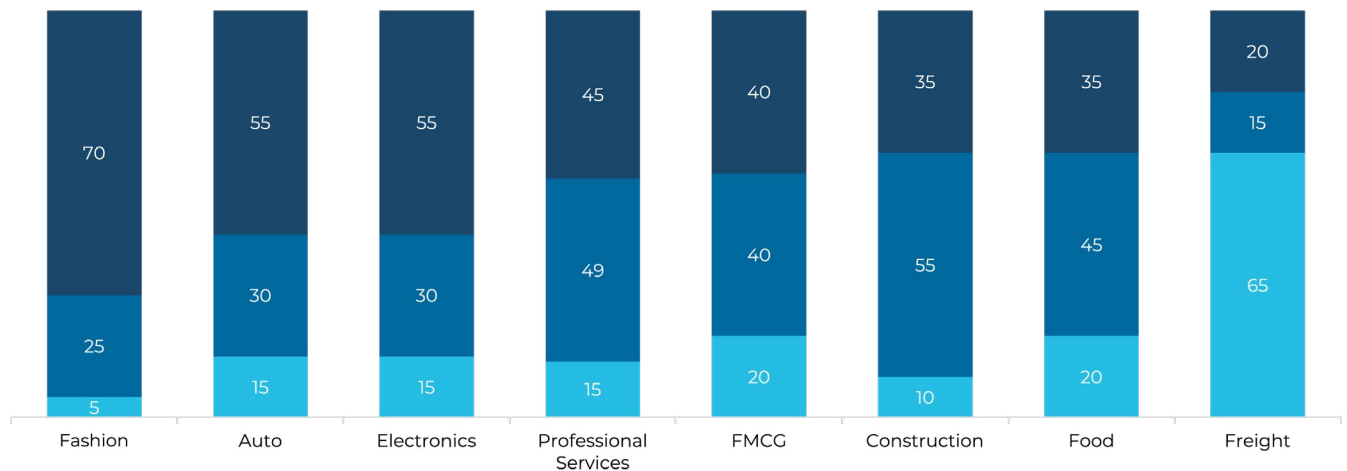
4. **Decarbonization value creation:** By pursuing abatement levers, companies can create additional value by reducing regulated and internal carbon costs and increasing indirect carbon benefits. These levers often require some form of investment or expense outlay.

A study done by the World Economic Forum (WEF) and BCG found that one-third of levers are typically cash flow positive (i.e., can be quickly abated at zero / negligible cost), one-third cost fall within the \$10-100/ton and could be actioned depending on the value creation, and one-third are costly. In fact, decarbonization is feasible across many sectors, with ~40% of carbon emissions potentially abated at low cost (Exhibit 4). Firms can overlay a value lens to these abatement curves to decarbonize, reduce their costs, and unlock new benefits.

Exhibit 4:

Decarbonization is feasible across many sectors with ~40% of emissions addressable at low cost

Estimated share of abatement lever cost by value chain (%)



Levers with average cost

40% at <\$12 per ton of CO ₂ equivalent	40% at \$12-120 per ton of CO ₂ eq.	20% at >\$120 per ton of CO ₂ equivalent
<ul style="list-style-type: none">• Circularity and recycling• Material and process efficiency• Renewable power	<ul style="list-style-type: none">• Renewable heat• New processes• Nature-based solutions	<ul style="list-style-type: none">• Fuel switch• Carbon Capture, utilization & storage• Industrial based solutions

Carbon-adjusted multiple

Not only can carbon impact a company's EBITDA and cash flows, but it also can impact a company's long-term growth prospects and exit multiple. Some industries are starting to factor in relative carbon performance into valuations, though it is often viewed qualitatively.

Investors will need to decide when to adjust a market multiple. If an investor is able to capture the forward impacts of carbon (e.g., current relative carbon performance, future carbon price outlook, decarbonization strategy impacts on future performance, etc.) in LTM EBITDA, then an adjustment likely will not be needed. However, if a company's future earnings quality and risk levels are not fully captured, then an investor may consider adjusting the market multiple.

Note: FMCG = Fast-moving consumer goods; Analysis excludes healthcare sector
Source: World Economic Forum & BCG report 'The Supply Chain Opportunity' (Jan 2021)

CASE STUDIES

In a perfect world, there would be a clear way for private markets investors to determine how carbon impacts value. Firms would have information to clearly assess and know a company's carbon footprint and projected carbon trajectory, understand impact of carbon intensity on stakeholders (e.g., customers, supply chain, financing), and have visibility to geographic-specific forward markets for carbon.

This is not the world we live in today. It is, however, possible to incorporate carbon pricing into business decisions even in the absence of available data. In the examples that follow, we demonstrate how firms and portfolio companies have started to embed carbon pricing into their business processes, and the resulting value unlock.

Case study 1: Private markets investor assessed impact of decarbonization on value creation to unlock opportunities

The industrials team at a large private markets firm was evaluating the acquisition of a leading special components manufacturer. During due diligence, the team assessed carbon-related risks and opportunities from emissions, incorporating findings in the value creation plan.

The deal team found that the company spends ~\$5M on energy each year, with one manufacturing site making up the bulk of company emissions. A list of energy saving projects focused on compressed air systems, preventative maintenance, and onsite renewable energy could unlock ~\$10M+ in savings (~\$700K annually) and >10% emissions reduction in three years, with only a ~\$2M upfront investment needed over three years. Since acquisition, the firm has worked closely with PortCo management to implement projects. In the first year alone, ~\$460K in annual savings and 8.5% emissions reduction have already been realized.

Case study 2: Private markets investor pursued abatement levers, leading to reduced regulated carbon costs with additional indirect benefits

An international private markets firm acquired a European producer of specialty chemicals. The company is required to buy credits under the EU ETS. Since ESG is a key focus for this company, decarbonization was a core part of the value creation work. Under the firm's ownership, the company measured GHG emissions to better understand GHG emissions footprint, implemented a catalytic converter (nitrous oxide scrubber) to reduce annual nitrous oxide (NOx) emissions, and renegotiated contracts to incorporate the cost of carbon and share risks with customers.

These actions helped to reduce 98%+ of NOx emissions and 600K tons of CO2 annually, leading to some 3M EUR savings in regulated carbon costs. Additionally, a sustainability-linked loan was obtained, which was tied to reducing emissions. The portfolio company is now also better positioned to set even more ambitious climate goals, such as SBTs by year-end.

Case study 3: Fintech portfolio company incorporated internal carbon tax to incentivize decarbonization

A European fintech portfolio company sought to become net zero by 2040, with an interim goal of reducing emissions by 50% by 2030. The company placed an internal price on carbon and embedded it in department budgets to guide internal decision-making and incentivize decarbonization.

Scope I, II, and travel emissions were taxed at \$100/ton (compared to other peer internal carbon pricing, set at ~\$30/ton), with remaining Scope III emissions taxed at \$10/ton. Over \$1M was generated from this tax and invested in 10+ high-impact climate solutions, including permanent carbon removal, reforestation and forest protection, and decarbonization and community advocacy. The internal carbon tax will continue to support and encourage progress towards the 2040 net zero goal.



SUGGESTED BEST PRACTICE STEPS TO INCORPORATE CARBON

This is merely the start of a longer journey for private markets and each firm will need to decide how to best incorporate carbon into its decision-making processes. There are several learnings we can take from early movers that have already embarked on this journey and provide a menu of options for firms to consider that are starting on the path.

- Implement firm-wide and portfolio-wide carbon footprinting to understand the baseline and prioritize abatement efforts.
- Consider carbon-related costs and benefits in investments to better prepare for and invest in a decarbonized future.
- Define an approach to climate risk and opportunity and integrate into strategy to provide clarity across the firm and portfolio.
- Mobilize the organization & grow internal capabilities to help ensure the firm is able to embed carbon-related costs and benefits into decision-making processes.



ENABLING INDUSTRY ADOPTION

Private market investors are at different stages of their emissions reduction journeys. Approaches vary: some firms apply an internal carbon price to quantify climate impact while others just conduct a qualitative assessment of risks.

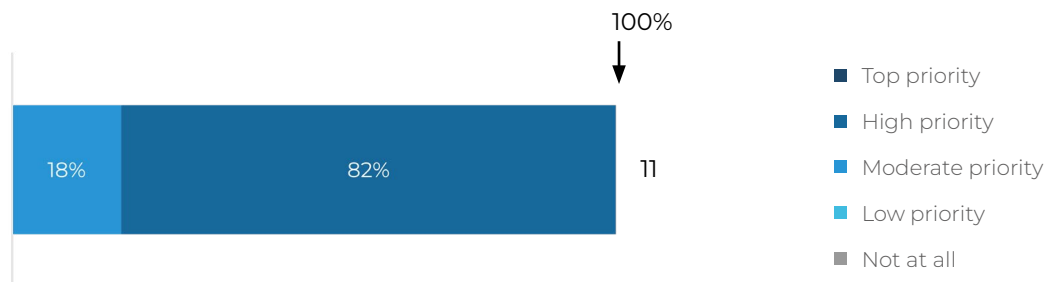
That said, carbon is becoming an increasing priority for firms, with 82% of PESMIT CEOs and leadership indicating that global climate transition is a top investment priority that may materially influence where and how their funds may deploy capital (Exhibit 5).

Exhibit 5:

Majority of PESMIT leadership respondents believe that the global climate transition is a top investment priority

To what extent is the global climate transition an investment priority (risk and opportunity) at the firm level...

(n=11)



Widespread adoption starts with a simple and easy to use set of guidance. However, given we are not yet in a world where the impact of carbon is fully and consistently priced, several enablers are needed to entice private markets adoption.

First, carbon needs to be prioritized by the most senior level members of firm management, setting an example for deal teams and the rest of the firm to follow. For example, firms could consider incorporating carbon into investment committee discussions, working to ensure that deal teams ask management about carbon as part of the diligence process. Fund management can also consider making public commitments, signaling that carbon is a fund priority.

Second, firms and their portfolio companies will need to have appropriate baselining and decarbonization tools to enable firms to measure emissions, analyze abatement actions, develop decarbonization plans, and track progress. By investing in capabilities, firms will be better able to measure the impact of carbon on the portfolio.

Third, alignment on reporting expectations will improve information transparency and comparison efforts, including the metrics to report on and frequency of reporting. One example of a model for transparency is the ESG Data Convergence Initiative², which has 275+ GPs and LPs that have partnered to create a standardized set of ESG metrics for private markets to help LPs compare performance across portfolios.

Source: PESMIT CEO Survey, Jul 28 - Aug 12 (n=11); BCG analysis

²BCG and several members of PESMIT are involved with this initiative

Finally, although climate-related considerations may be linked to investment performance, incentives may be needed to support climate action and encourage deal teams to consider carbon reduction in investment and ownership decisions. There is a wide range in potential approaches firms can adopt. Some firms may choose to adjust financial metrics such as net asset value or carried interest, some may introduce separate incentives tied to different climate goals or incorporate carbon into review processes, and others may not have explicit incentives but implicitly incentivize deal team prioritization by incorporating carbon into investment processes and educating deal teams around how carbon reduction can be a driver of enhanced value. Each fund will need to decide for itself the best way to incentivize climate action.

Practical application of guidance

While the components of our guidance are intended to be holistic in nature, the depth to which this guidance is applied will vary based on many factors such as stage of the investment lifecycle, degree of ownership, and sector / geographic dynamics.

Investment lifecycle

The level of information available to determine carbon costs and reductions will vary from diligence to ownership. However, even in the absence of perfect information, private markets investors can still take actions to assess the potential impact of carbon. For example, an outside-in carbon baseline can be estimated using proxy information of comparable assets, existing marginal abatement cost curves can be used to identify abatement levers along with a high-level estimate of their impact, and focusing on material costs, even just qualitatively, can help ensure carbon is incorporated across all stages of the investment lifecycle.

Degree of ownership

Less control of an asset may lead to less detailed information on an asset's performance and reduced ability to influence decarbonization actions. As such, firms may need to make proxies / estimates to determine the carbon components and exert softer influence (e.g., through Board representation, etc.).

Sector / geography

Across sectors, application of the guidance is not one-size-fits-all given differing carbon materiality and types of costs / benefits. Firms may take a carbon-specific approach, focusing on higher emitting assets or geographies where carbon risk is greatest. The abatement levers with highest impact will also vary by industry, driven by the differing costs and benefits.

CONCLUSION

As an industry, an important step private markets can take is to recognize the valuation impact of carbon starting today. The cost of inaction is ever increasing, for valuation and for the environment. Ideally, this guidance can act as a catalyst for action and support firms as they embark on a long-term journey to play a meaningful role in supporting the energy transition.



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