# USING CARBON MARKETS TO OPTIMIZE ABATEMENT CAPEX

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As the world confronts climate change, companies, policymakers, and individuals recognise the need for urgent action. Businesses embracing sustainability can gain a competitive edge by addressing emissions with tailored solutions. One key tool is the carbon market, where entities buy, sell, and retire carbon allowances.

For years, the primary capability managing emitters' carbon challenges has been comprised of policy, compliance and technical expertise. The emergence of carbon markets has added a new dimension to this landscape. These markets, including cap-and-trade systems, serve as platforms for players to engage in transactions and retirements of carbon emission allowances and credits. Their primary aim? To accelerate greenhouse gas emissions reduction via economic incentives. The burgeoning scale of global carbon markets presents opportunity for enterprises to expedite the construction of commercial carbon teams. Building internal capabilities not only enhances resilience but also bolsters competitive advantage in an increasingly carbon-conscious marketplace.

This article explores how organisations can navigate carbon markets to mitigate risk, unlock value, and de-risk with carbon credits.

## Emerging Micro Market Structure

Carbon markets, though growing and maturing rapidly, still grapple with inherent structural challenges. Ideally, these markets should exhibit liquidity and fungibility akin to efficient capital markets, facilitating price discovery and instilling confidence in participants. Yet, in practice, the marketplace exists as a multitude of micro markets, each catering to distinct buyer requirements and seller value propositions. While efforts to homogenise these markets might simplify comparisons between credits, they also risk compromising transparency regarding true value. That's why finding the right match between buyer and seller is key to optimising value for both sides - examples inlcude:

### Emissions Type Match

- An agri-business in Australia teaming up with Oil & Gas players internationally
- Their operations, supply chains, and business models are completely different
- What makes them a match is the molecule: methane
- Oil & Gas players emit methane, and so do cows – buying a methane abatement credit can help an O&G player abate otherwise costly methane emissions

### Co-Benefit Match

- A fleet vehicle company is supporting Australia's first blue carbon coastal wetland restoration project
- The company acts as a go between for fleet services and commercial entities, and therefore has a large scope 3 emissions profile they're attempting to account for with offsets
- The co-benefits of this project include biodiversity, supporting indigenous communities, downstream water quality, and improved coastal resilience

### Geographic Match

- A major mining business frequently co-locates their projects on site to maximise the benefits created
- For example, starting a solar farm in the Pilbara region of WA, the construction and operation of which is not within the business' standard operations
- The solar farm is located on the premise of the mine site to then feed renewable fuel back into the businesses to abate operations further compounding the benefit of renewables

### Technology Match

- A landfill gas company that already creates refuse derived fuels, can minimally retool its process to also create wood waste derived fuel (WWDF), this fuel can replace the use of fossil fuels in its operations and generate carbon credits
- They can also sell the WWDF downstream to kiln operators who replace coal with the WWDF and further reduce emissions
- An example of a match where the right technology was already in place

Figure 1.1: 'Matchmaking' between Emitters and Their Offset Purchases

# Finding Your Match

Credit buyers are becoming more sophisticated and are increasingly demanding transparency throughout the carbon credit lifecycle. This bias towards direct investment or over-the-counter transactions underscores a desire to bolster due diligence, consequently slowing the growth of certain voluntary markets. Moreover, concerns surrounding credit integrity have impeded access to compliance carbon markets, evidenced by events such as the expiration of the Clean Development Mechanism (CDM) for the EU-ETS. The expiration left potential projects in limbo as its effective replacement Article 6 is not yet ratified.

Stepping back from the marketplace and applying a customer lens - emitters looking for emissions solutions must work through the following steps:

1. **Identify** the source, value and impact of the emissions
2. **Explore** the key characteristics of the identified emissions and map to potential solutions – e.g. abate, remove and / or offset
3. **Understand** the capital capacity of the business and the CAPEX / OPEX trade-off by emissions source for each solution
4. **Tailor** the solutions to be deployed into an integrated and prioritised plan, highlighting any big portfolio moves required
5. **Optimise** and de-risk the plan, by flexing levers of value, timing and partners


Figure 1.2: Steps to Obtain the Right Carbon Solution

This process may seem relatively simple and straightforward, but in practice there is a great deal of ambiguity in mapping carbon credits to emissions. Carbon project activities are unlikely to perfectly align with the intended use for the credit the emitter has in mind. Stakeholders may have competing ideas about which solutions will be most beneficial for emissions reduction, and there are typically a large number of stakeholders involved in standing up projects.

To reduce this complexity, simplistic approaches are often adopted. Efficiently screening the vast array of solutions to find a good fit for the specific challenges of an emitter's carbon portfolio can produce a positive outcome, but ultimately more robust commercial and technical capabilities should be developed in-house to maintain an adaptive and sustainable carbon strategy.

Examples of carbon strategy archetypes include:

1. **Traditional Decarbonisation Trajectory** – An operational excellence-led strategy that addresses the 'easy-to-abate' activities first, while adopting a "wait-and-watch" approach for solutions that address hard to abate emissions to mature in the market.

2. **Decarbonisation Velocity Driven by Volume** – Deliberate capital investment in abatement solutions that target the largest emission source by volume. This can be very effective in reducing emissions at pace with the technology maturity curve but requires increased capital spending.

3. **Decarbonisation Velocity Driven by Price** – Accelerating capital allocation to decarbonise business operations by adopting an aggressive internal carbon price in anticipation of material future market price escalation.

4. **Decarbonisation through Business Model Reinvention** – A fundamental change to the existing operating model with the need to change often driven by an existential threat to the existing business. These often require novel partnerships and big technology bets.

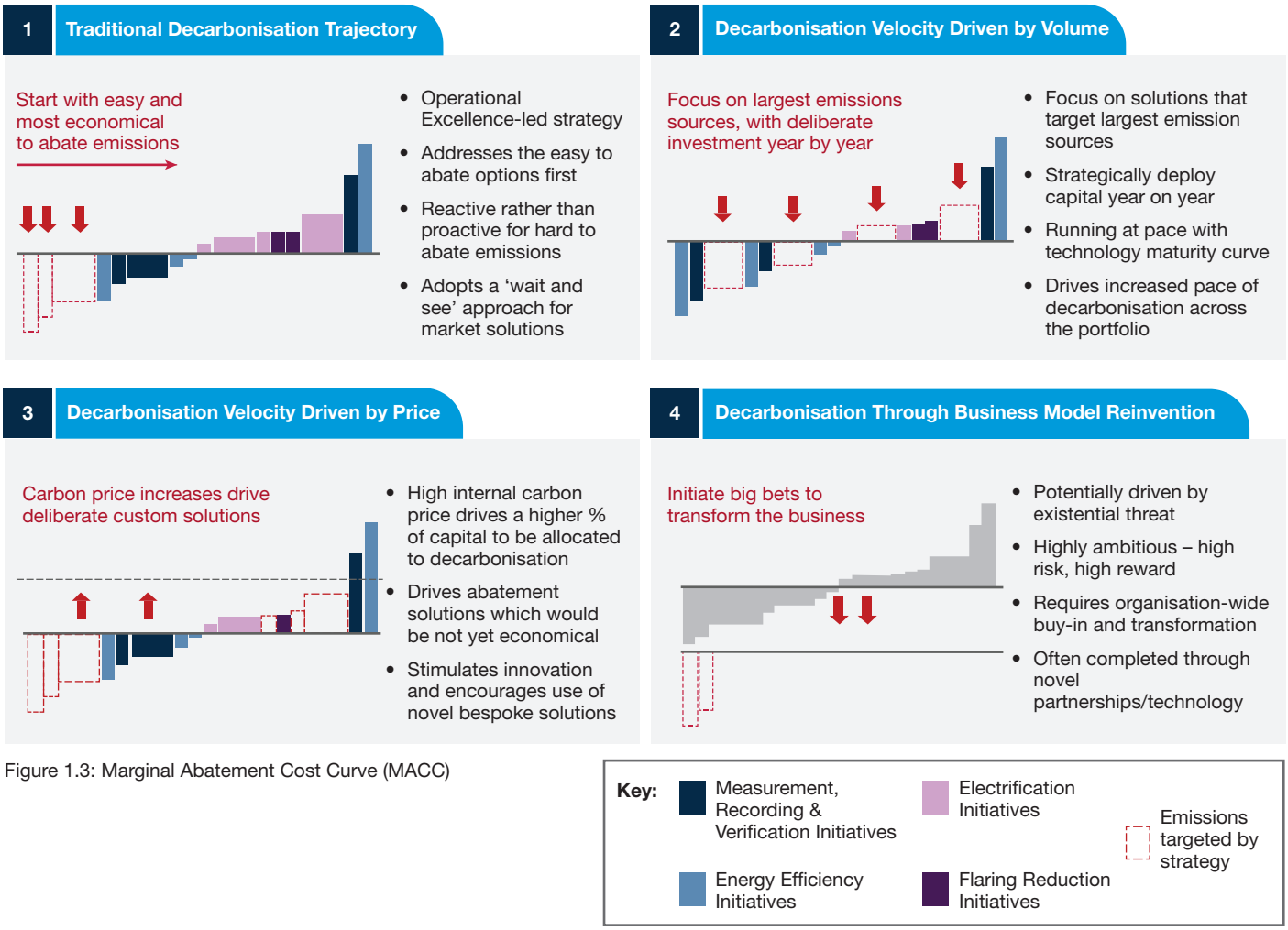


Figure 1.3: Marginal Abatement Cost Curve (MACC)

Each of the four approaches carries its own set of advantages and drawbacks, their appeal varying based on specific circumstances such as sector, geography, asset class, and lifecycle stage within the company's portfolio. Equally, the significance of external carbon credits and the criteria for suitable projects will vary depending on the chosen strategy and contextual factors.

## Match making – Dimensions along which to select carbon projects:

- Type of emission: CO2, CH4, NOx, Others
- Type of credit: Abatement, removal, offset
- Geography: Local, national, regional, global
- Project activity: Nature based, technology based
- Impact on value chain: Direct, insetting, offsetting
- Retirement profile: Immediate, insurance, hedge
- Credit demand: Continuous, point in time, balancing
- Co-benefit alignment: Additional, replacement, new
- Co-benefit stakeholder audience: Customer, community, supplier, regulator, etc…

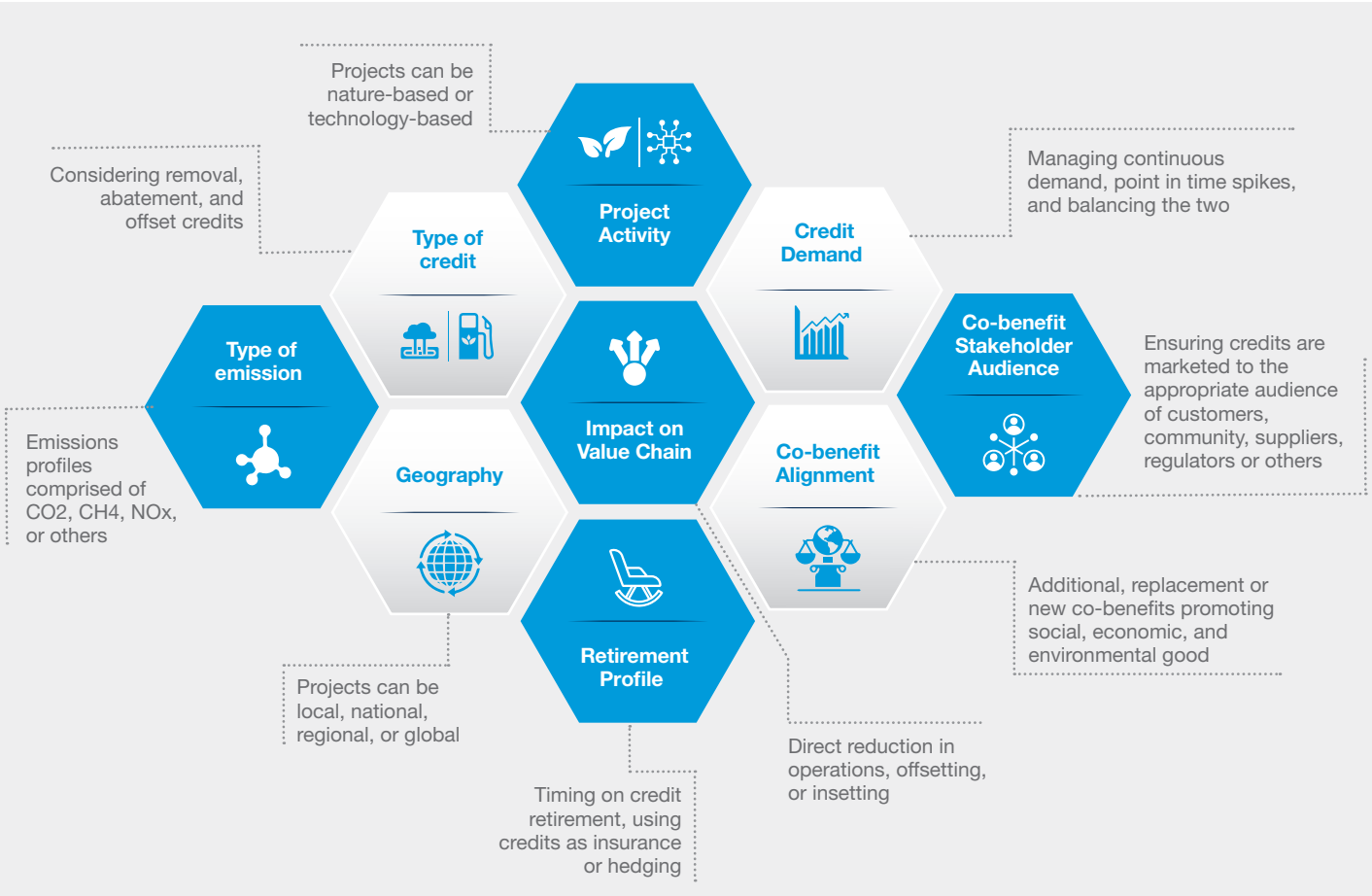


Figure 1.4: Dimensions

When discussing match making, the added complexity of multiple joint venture partners across multiple assets in a company's portfolio cannot be understated. Aligning the parties that ultimately fund the various carbon solutions with those who plan and implement them is important to maintain productive commercial relationships.

# Addressing the Spread – How to Close the Buy-Sell Gap

Fair allocation of value is at the heart of the transaction conundrum in carbon markets, both for individual transactions and for the risk of freeloading. Defining, apportioning, and protecting value derived from developing technologies, taking risks and being an early adopter, are all known challenges conceptually. The practical application in the carbon markets creates an additional risk that needs to be managed, further widening the spread.

A common thread regarding risks raised in the carbon markets aligns to assessing, understanding, and assigning value to the carbon solution being considered. The marketplace serves as a barometer of fair value in a commodity sense.

> Rather than looking to the market for a price, looking internally at the alterative carbon solutions available to address specific emissions should provide the baseline and reference point to pricing a market-based solution.

This internal perspective embeds a more dependable view on value, enhancing confidence in internal capital allocation decisions. It also bolsters external communications, signaling an adept identification and application of the most economical solutions.

The main challenge to achieving fair value is the fear of overpaying.  This fear is coupled with a lack of transparency regarding what buyers actually get for their money – essentially a promise to not do something. Moreover, misunderstandings persist regarding the valuation of different credits, leading to uncertainty over whether units are deemed 'full', where buyers confidently receive the total value of carbon abatement, or 'portion', leaving them uncertain if the actual abatement matches the claimed value.  These issues lead to conservatism in procurement analysis and a desire for discounts, which often makes achieving a transaction very challenging.

Each transaction comes with underlying concern over the credit's nature, with broader implications when scaled globally, as political shifts may alter a credit's essence over time. One perspective suggests treating carbon markets akin to currency exchanges, with each market governed by distinct rules and a credit exchange rate facilitating transactions between markets. This framework offers a means to address variability between 'soft credit' and 'hard credit' markets, accommodating the diverse maturity levels of marketplaces, particularly with the expansion of new compliance markets.

The 'silver buckshot' analogy implies that the global issue can only be addressed via a broad range of solutions. However, the reality is that properly valuing abatement, removal, and offset credits requires significantly more measurement, and complexity to be managed than a commodities marketplace can currently provide.

# Pricing Complexity and Considerations

Businesses often rely on the market to inform macro-economic assumptions for business case development. Given the current lack of liquidity and associated low reliability of price discovery, it is worthwhile to consider alternative pricing models.

On the supply side, costs and expected returns contribute to determining the price point. Conversely, on the demand side, pricing is relative to the marginal abatement cost curve (MACC) for alternative solutions.


Figure 1.5: Pricing Model Spectrum

This range of potential price points is also influenced by the counter-party's willingness to sell. In the case that cashflow is needed, it will be high, and when they do not, it will be low. The current enduring contango in the market, at around 4-7 percent (market dependent), makes holding credits an attractive position, albeit less so if they come with a vintage or from sellers with high costs of capital.

Additionally, pricing complexities are compounded when navigating different markets. New ETS markets are actively learning from their more mature counterparts, and each is tailored to the most impactful sectors in that country or region.

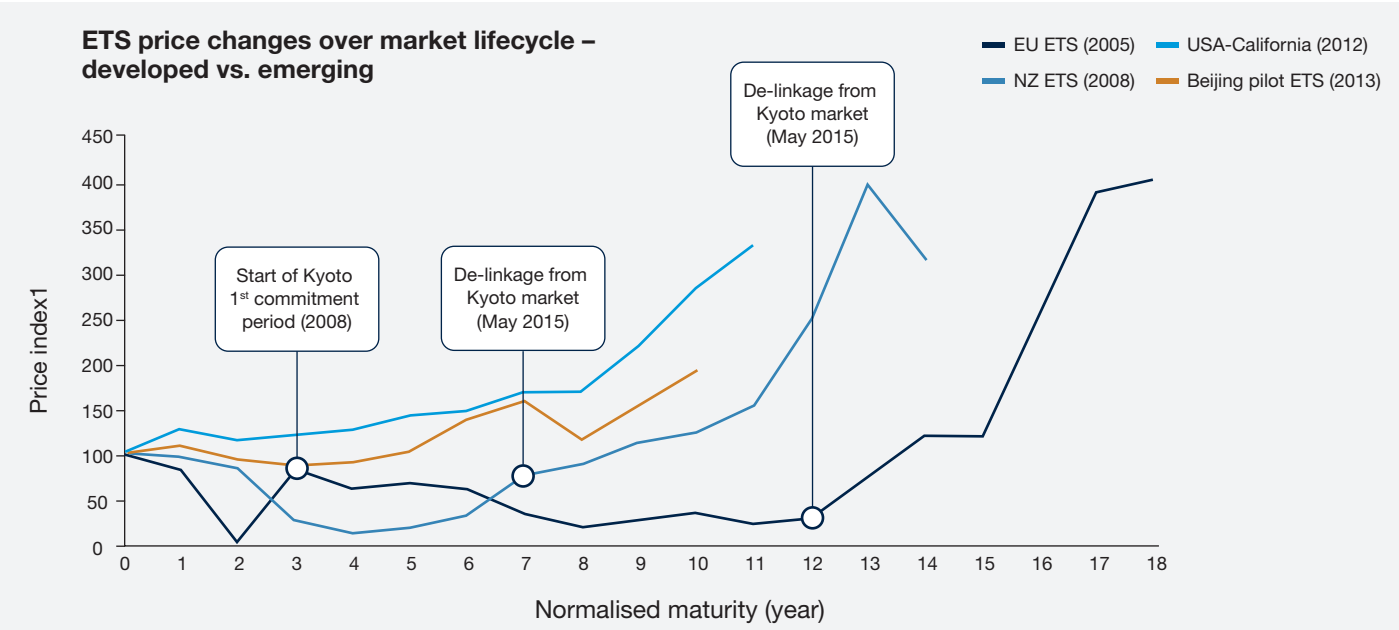


Figure 1.6: ETS Price Curve Data - Advent to Current Day

In addition to market maturity, the methodologies employed in credit-generating projects play a crucial role. There are over 50 carbon credit methodologies, 30 compliance and voluntary markets, and more than four standards bodies, adding complexity. Given the high degree of uncertainty, entering carbon markets necessitates a prudent and cautious approach.

Ultimately, establishing a reliable internal baseline and carbon pricing mechanism can provide businesses with a competitive advantage, especially when supported by legislation, including those such as cross-border adjustment mechanisms (CBAM) on final product pricing.

One other consideration regarding carbon pricing is the ability for the business to pass through costs to customers. In some sectors, the additional cost burden is negligible, and the main constraint therefore becomes available capital to decarbonise. For others, there is no or limited ability to pass through costs, which dramatically reduces the suite of economically viable abatement options.

## Four Pillars Underpinning Winning Strategies

Once businesses understand carbon markets and how micro markets differ in price and function, it's critical to take stock of internal capabilities and the external environment to ensure that four core underpinning pillars are present. These four pillars – endowment, technology, regulation and culture – can act as roadblocks or accelerators to execute a sustainable carbon strategy.

- **Endowment** pertains to the asset class(es) comprising a business's portfolio, significantly influencing the (MACC) and thereby guiding the carbon strategy. For instance, businesses with extensive physical assets, like mines or manufacturers, must consider electrification, fleet management, and equipment upgrades, while those with limited physical assets, such as software firms, may prioritise renewable energy adoption and sustainable supplier choices for data processing and travel reduction.

- **Technology** serves as a pivotal enabler for reducing scope 1 and 2 emissions, ranging from simple solutions like LED lighting to complex innovations such as direct carbon and methane capture. Identifying technology 'quick wins' enables businesses to rapidly achieve meaningful reductions to their baselines whilst also creating the potential to generate revenue. Additionally, understanding the positioning of technological interventions along the MACC aids in determining the most viable options. While new technology implementations may require significant capital investment, they often present opportunities for carbon credit generation, adding further value and positioning businesses as pioneers in the market.

- **Regulation,** traditionally viewed as a cost burden lever for emitters, can actually facilitate value creation in carbon markets. Governments endeavor to incentivise and enforce nationally determined contribution (NDC) goals without destabilising domestic economies. Achieving this balance requires stability and involves penalising inaction or gaming the system while rewarding risk-taking and leadership. Early movers may benefit from government grants, loans, and support, influencing policy making in the process.

- Finally, **company culture** permeates every aspect of an organisation, shaping behaviours, attitudes, and performance. It represents a critical internal pillar to consider when formulating a carbon strategy. Cultivating a culture of innovation, agility, and commercial acumen within carbon strategy teams or across the organisation more broadly can mitigate inertia during strategy development, fostering a proactive approach and company-wide buy-in to addressing carbon challenges.

# Moving from Cost to Commercial

The strongest incentive for decarbonisation is an attractive commercial proposition. Continuing to perceive carbon solely as a 'tax' impedes societal progress and obstructs emitters from harnessing sustainable value for their enterprises.

With the advent and maturation of carbon markets, carbon should no longer be considered a cost to be minimised, but rather an avenue for real balance sheet value creation. Ambiguity in the markets does still exist, and by sitting on the sidelines, businesses become susceptible to the risk that their competitors won't. Early adopters will have the opportunity to capture new revenue and sustain it as long as others remain hesitant, securing a competitive edge through swift action.

Resisting the temptation to adopt a 'wait and watch' approach and instead embracing the potential commercial benefits of carbon positions businesses ahead of the curve, propelling us closer to a balanced, equitable, and economically viable energy transition

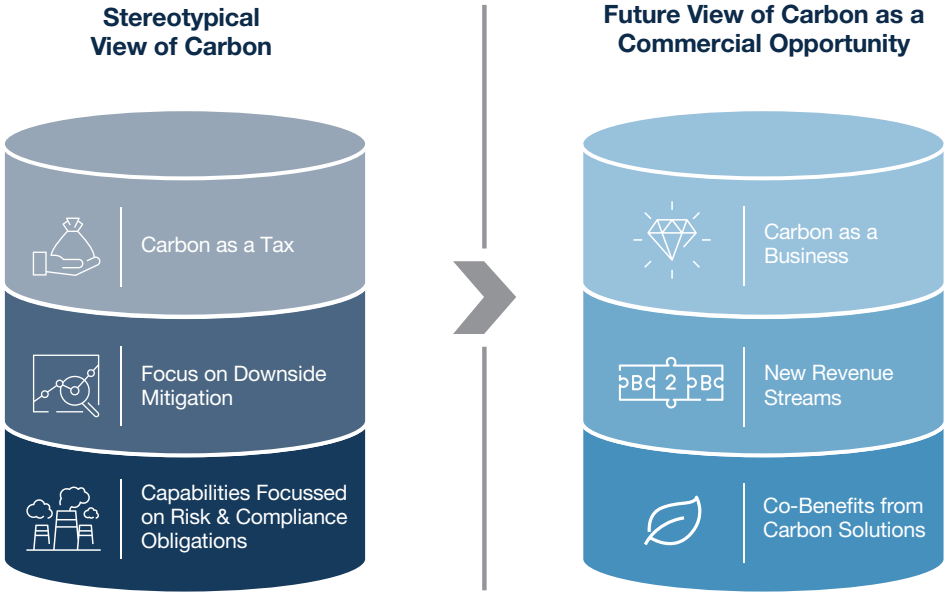


Figure 1.7 : Unlocking Future Value of Carbon

# Our Offerings

A&M provides a suite of service offerings for clients facing carbon markets, ESG, decarbonisation and broader sustainability challenges. We have experience in tailoring solutions to clients' unique profiles and have multiple functional offerings aligned to the energy transition.


We have deep energy domain expertise and provide an integration of highly skilled functional experts with upstream, midstream, downstream and power & utilities experts to achieve successful transformation outcomes.

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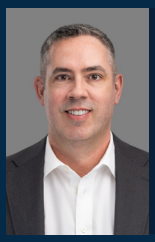

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