6 of 6 in the series

Financing the Transitions the World Needs: Towards a New Paradigm for Carbon Markets

- Chapter 6: Net Zero Not Enough

TRANSITION FINANCE
Ensuring Sustainability

About the Author

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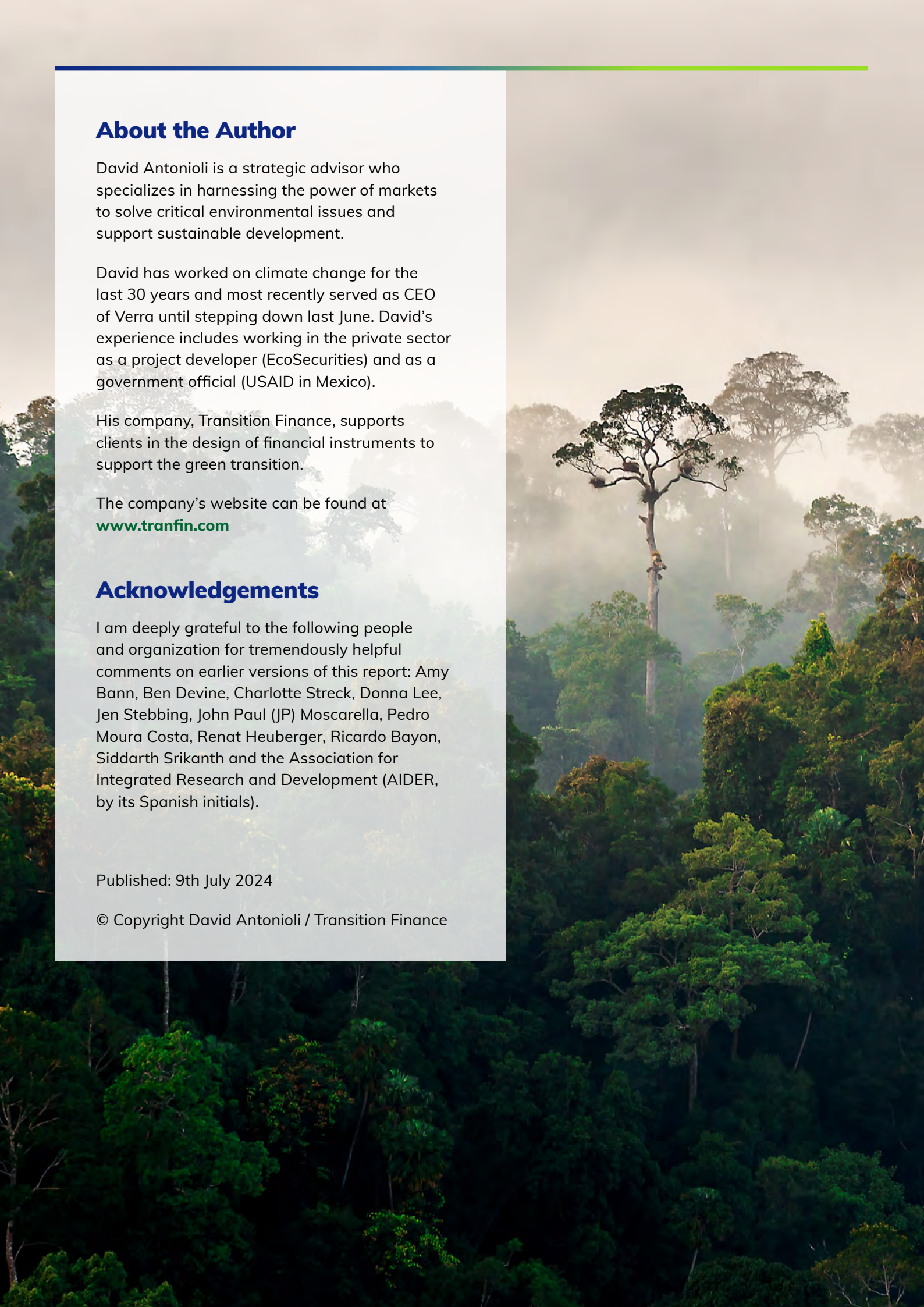
The company's website can be found at **www.tranfin.com**



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Summary of Previous Chapters

Throughout this report, I am setting out the case that the carbon market needs to be redesigned in a way that the limited finance it provides can serve as a catalyst that enables the long-term transition of sectors of the global economy. While Chapter 1 framed carbon finance as a potential tool to ensure such transitions, Chapter 2 proposed a new way of thinking about additionality, with a view to adapting this important concept so that the market can channel the financing it provides towards innovations that can eventually stand on their own. Chapter 3 discussed how to ensure the green transition for projects that will need ongoing support once the carbon finance that sustains them in the early stages comes to an end, including government regulation over time. While Chapter 4 applied the transitional paradigm to natural climate solutions (NCS), Chapter 5 applied it to renewable energy projects.

Introduction

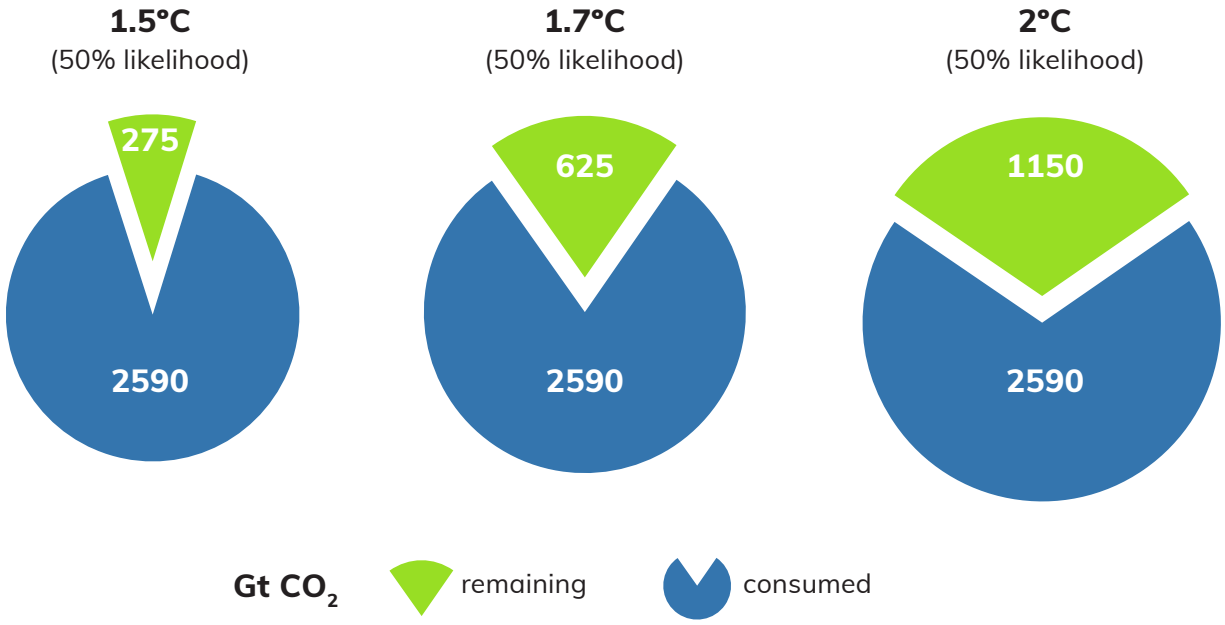
One of the drivers for thinking about how to use carbon finance as a transitional tool for the green transition came from a deeper understanding of the sheer scope of the challenge we face. Without some extraordinary intervention, and even if the world meets its Net Zero target, we are likely to overshoot the 1.5°C global heating target that is set out under the Paris Agreement. Considering that the consequences (e.g., flooding, droughts, wildfires) of the warming we have already caused, which is estimated to reflect warming of around 1.2°C, going beyond 1.5° is rather terrifying, and means we need to double down on solutions.

As I conclude this series, I therefore wanted to share some numbers that put some perspective on the daunting size of the emissions challenge the world faces, and which reinforces the need to ensure that carbon markets support the green transition.

What is Under the Curve?

According to its most recent report, the Global Carbon Budget estimates that we have about 275 $GtCO_2$ remaining in our carbon budget before we hit the 1.5°C threshold. Figure 7 below sets out the remaining carbon budgets for 1.5°C, 1.7°C and 2°C warming scenarios.[1] Considering we burned through approximately 40 $GtCO_2$ in 2023, that means that, without any reductions, we will consume the entire 1.5°C carbon budget in seven years, by 2031.[2]

FIGURE 7. REMAINING CARBON BUDGET



Source: IPCC AR6 WG1; Forster et al, 2023; Friedlingstein et al 2023; Global Carbon 2023

1 IPCC AR6 WG1; Forster et al., 2023; Friedlingstein et al 2023; Global Carbon Project 2023.

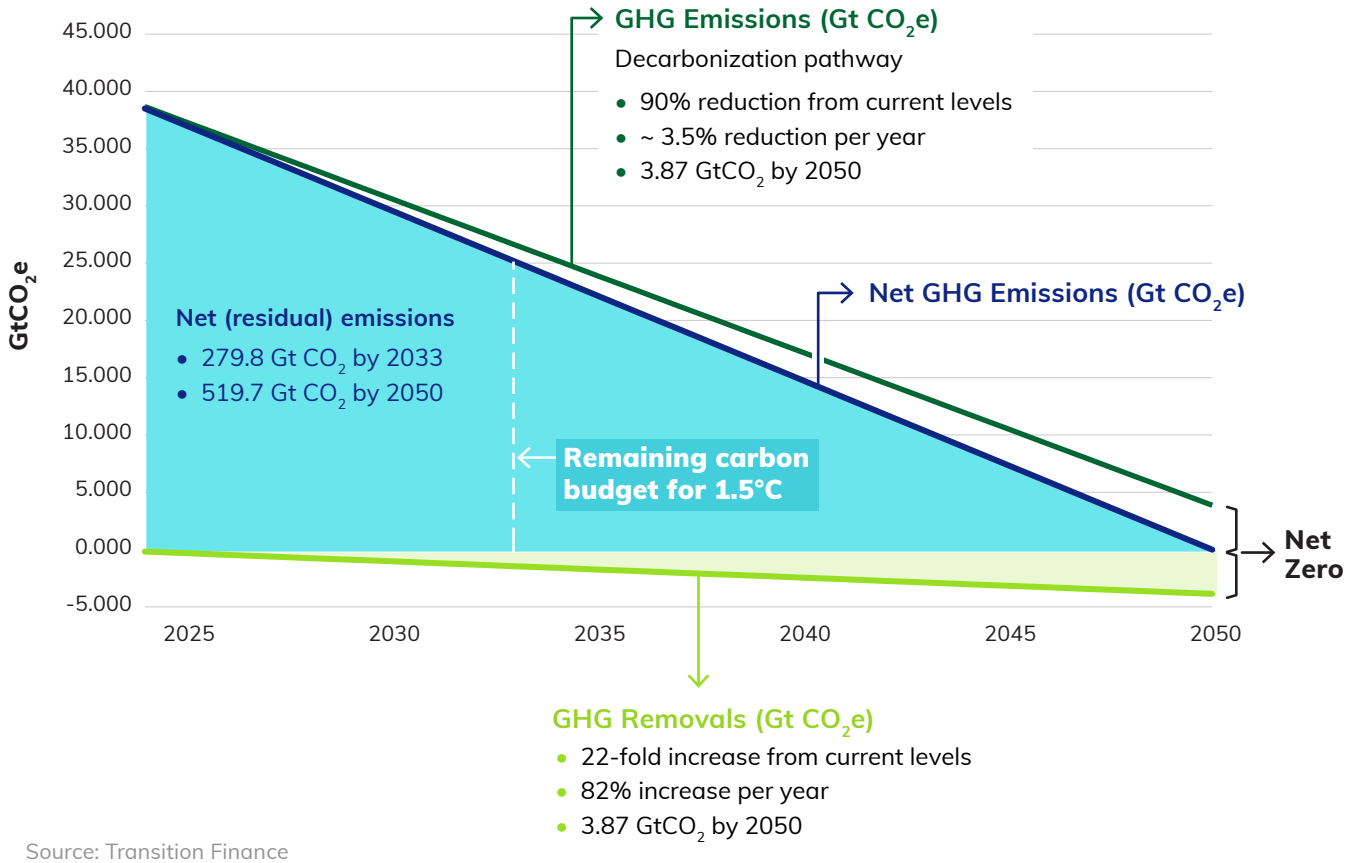
2 It is worth noting that the numbers I am using here are conservative. Other sources such as the European Commission in its JRC Science for Policy Report of GHG Emissions of all World Countries 2023 indicated total GHG emissions in 2022 were 54 Gt CO_2eq, while the US Environmental Protection Agency cites data from Climate Watch indicating that 2021 emissions were 48 Gt CO_2. The Brookings Institute, for its part, estimated that 2022 emissions would be 58 Gt CO_2. Using any of these figures as the starting point means we consume the entire 1.5°C carbon budget much sooner.

Even if we start to reduce emissions and grow removals, we are not likely to gain much time, at least in the short term. For example, Figure 8 below sets out a simplified curve showing a hypothetical smooth pathway towards net zero in 2050, with net emissions reflecting the decarbonization pathway and increasing volumes of removals. Specifically, the figure assumes the following:

- The world starts to reduce emissions from the 40 $GtCO_2$ emitted in 2023, with 2024 emissions equaling 38.7 $GtCO_2$;
- There is a steady decrease in emissions of 3.5 percent per year until emissions equal 10 percent of 2023 emissions (i.e., emissions fall to 3.87 $GtCO_2$ in 2050); and
- Removals grow steadily and eventually compensate for unavoidable emissions (i.e., removals grow to 3.87 $GtCO_2$ in 2050).

As the diagram shows, even with these rather optimistic scenarios, we will have consumed the 1.5°C carbon budget in 2033.

FIGURE 8. THE INCONVENIENCE OF CONSIDERING WHAT'S UNDER THE CURVE



Source: Transition Finance

Not mentioned in many of the discussions around net zero is the inconvenient truth that without any further action beyond efforts to reach net zero, which are comprised of internal reductions by companies and a growing volume of removals, we would collectively pump a whopping 520 $GtCO_2$ into the atmosphere by 2050. Obviously this is significantly more than the 1.5 °C threshold and starting to approximate the 1.7°C scenario set out in Figure 7. These emissions are the net residual emissions as represented by the light blue triangle that is under the curve.

Importantly, there are few mechanisms that are designed to address these “under the curve” emissions at scale and rapidly. Much of the climate finance being provided is either winding its way through complicated processes, or has not even been committed. There is a desperate need to deploy capital now.

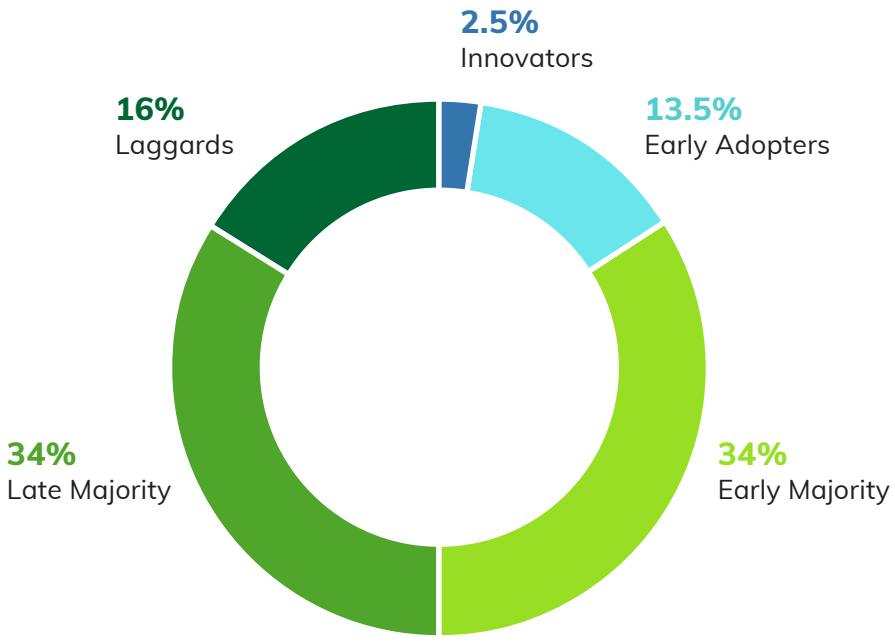
Carbon markets can help fill the gaps. Much of the basic infrastructure and foundation is already there; we simply need to change the paradigm to ensure that carbon markets are designed to ensure the green transition and channel the urgent finance that is needed in the short term.

Implications for the Transition and Addressing Net Residual Emissions

The climate impacts of enabling large-scale transformation of sectors of the global economy can be tremendous. If a particular sector of the economy is transformed through the sale of carbon credits to the early interventions, then carbon markets will have catalyzed significant climate action beyond what was paid for with carbon finance.

Figure 9 below illustrates how this could happen based on the assumption that the Positive Tipping Point (PTP) for a particular sector, based on the Diffusion of Innovations, is set at 16 percent market penetration. In this case, carbon finance helps introduce new practices and technologies and supports Innovators and the Early Adopters embrace these innovations in the first place. Once this target has been achieved, the remainder of the sector comes onboard, with the Early Majority and the Late Majority adopting the new practices and generating significantly more emission reductions and removals than those paid for with/through carbon credits. Specifically, the Early and Late Majority end up generating 4.5 times the volumes generated by the Innovators and the Early Adopters. If the Laggards end up adopting the new innovations, the climate benefits of transforming the entire sector end up being 5.25 times greater than what was financed through carbon finance.

FIGURE 9. EMISSION REDUCTIONS THROUGH THE DIFFUSION OF INNOVATIONS LENS



Source: Transition Finance

Conclusion: Towards a New Paradigm for Carbon Markets

Summary

The opportunity to enable large-scale emission reductions and removals takes us back to the underlying question: What are we trying to achieve? Perhaps more importantly, though, is what do we need to achieve given the scale of the crisis, and what then is the role of carbon markets?

For a long time carbon markets have been almost exclusively focused on the accounting for the tonnes being paid for through carbon finance. This has led to significant investment in projects introducing and implementing amazing innovations that are helping to fight climate change and in many cases benefitting individuals, communities and biodiversity. In addition, this has created a strong foundation and corresponding infrastructure.

However, given the scale of the crisis, we need to reconsider the huge potential carbon markets have for making a larger contribution. At their core, carbon markets provide early-stage capital to promising new ventures and those activities that may not be implemented without carbon finance. Nevertheless, many of the rules governing carbon markets limit their potential for driving the type of transitions the world desperately needs.

Report Highlights

In an ideal world, carbon markets would provide the financial support that would accomplish four key things:

- **Introduce new technologies and practices to sectors of the global economy;**
- **Reduce the costs of these innovations;**
- **Build the technical capacity and infrastructure needed to provide ongoing support; and**
- **Derisk future investments in the sector.**

Accomplishing the above would set the stage for the ongoing adoption of these new technologies and practices without the need for carbon finance, thereby setting in motion the type of transition the world needs. However, some of the rules governing the carbon market are not designed to achieve these key underlying objectives. To do so, the market needs to tackle the following key issues:

- **Define the end game.** The market needs to define, upfront, when carbon finance is no longer appropriate for those project types that can generate revenues on their own but need that initial boost to gain traction in the market. As it stands, the market largely leaves this decision to some undefined moment in the future, when projects are no longer considered additional. While this construct may work conceptually to ensure integrity, it is incremental and severely undermines the types of long-term investments needed to transform sectors of the economy.
- **Ensure longevity.** The market needs to figure out how to ensure the long-term implementation of projects that are exclusively financed through the sale of carbon credits and therefore currently have no other way to sustain themselves. While these types of projects may generate highly additional tonnes over the course of the crediting period, they are at risk of coming to a crashing halt when there are no more carbon revenues.
- **Streamline approval processes.** The market needs to create a more streamlined pathway to approve projects. The current model used to assess most projects creates an incredibly complicated, cumbersome and costly review process that will simply not enable the kind of scaling of climate action that is desperately needed. This is especially the case for NCS where the siloed approach to project approvals undermines investment across broader landscapes.

As I set out in Chapter 2, a good place to start is with additionality, whose original construct as enshrined in the additionality tool dates back decades and continually leads us back to making reductive apples and oranges comparisons that tend to ignore the bigger picture and undermine the ability of new technologies and practices to overcome entrenched interests. Due to the emphasis on each individual project, the additionality tool forces the market to take an incremental approach to fighting climate change, which prevents it from operating with a coherent theory of change and is essential if the market is going to achieve a deeper impact.

Chapter 2 proposed using PTPs as a way to both embed a theory of change into the additionality construct and provide a streamlined approach for project approval. The use of PTPs is most appropriate for those project types that have an underlying economic rationale but need extra support in the early stages. In many ways, these project types are the businesses of the future; carbon markets should embrace them and nurture them until they can stand on their own.

Government participation, as set out in Chapter 3, will also be key given that some activities supported through carbon markets may need regulation or additional support once the carbon finance comes to an end. What's more, carbon markets can be further designed to support greater climate ambition by countries that are keen to take action but do not have the resources today to make costly investments in new technologies and practices. There is both pressure on and interest in countries to take on greater climate ambition; carbon markets can play a critical role in supporting efforts that lead to the green transition.

Given the importance of protecting and restoring our natural habitats, and their potential to both reduce emissions and generate removals, NCS financed through the sale of carbon credits will continue to be a key part of the puzzle. As set out in Chapter 4, integrating these solutions could foster more holistic landscape management, strengthen the resiliency of projects and address concerns about both permanence and leakage from structural standpoint. Rather than having to rely exclusively on the rules and requirements to address permanence and leakage, an integrated landscape approach would enable a more effective approach to conservation and restoration by providing long-term economic and ecosystem value.

The need for a green transition is patently clear in the case of the energy sector. While the carbon market made early contributions to the development of renewable energy technologies, the reductive approach to additionality and the lack of a longer-term objective prevented it from playing a key role in channeling finance to the biggest challenges the sector faces today -- building out the grid and ensuring back up power to enable large-scale deployment of renewable energy projects. As I set out in Chapter 5, the carbon market is uniquely positioned to help solve this challenge, especially with its track record in supporting the early development of renewable energy projects.

A New Paradigm for Carbon Markets

Carbon markets are facing an inflection point that will determine whether they can grow to play a greater role in the global fight against climate change. To date carbon markets have channeled billions of dollars into climate action across a number of sectors of the global economy. Along the way, they have pioneered new ways of financing truly groundbreaking efforts that are helping to solve some of the world's most complex challenges, including developing and distributing new innovative technologies, protecting and restoring forests, and promoting regenerative agriculture, to name a few. It has done so by harnessing a nimble source of finance that can deliver action on the ground relatively quickly, all while improving lives and strengthening biodiversity.

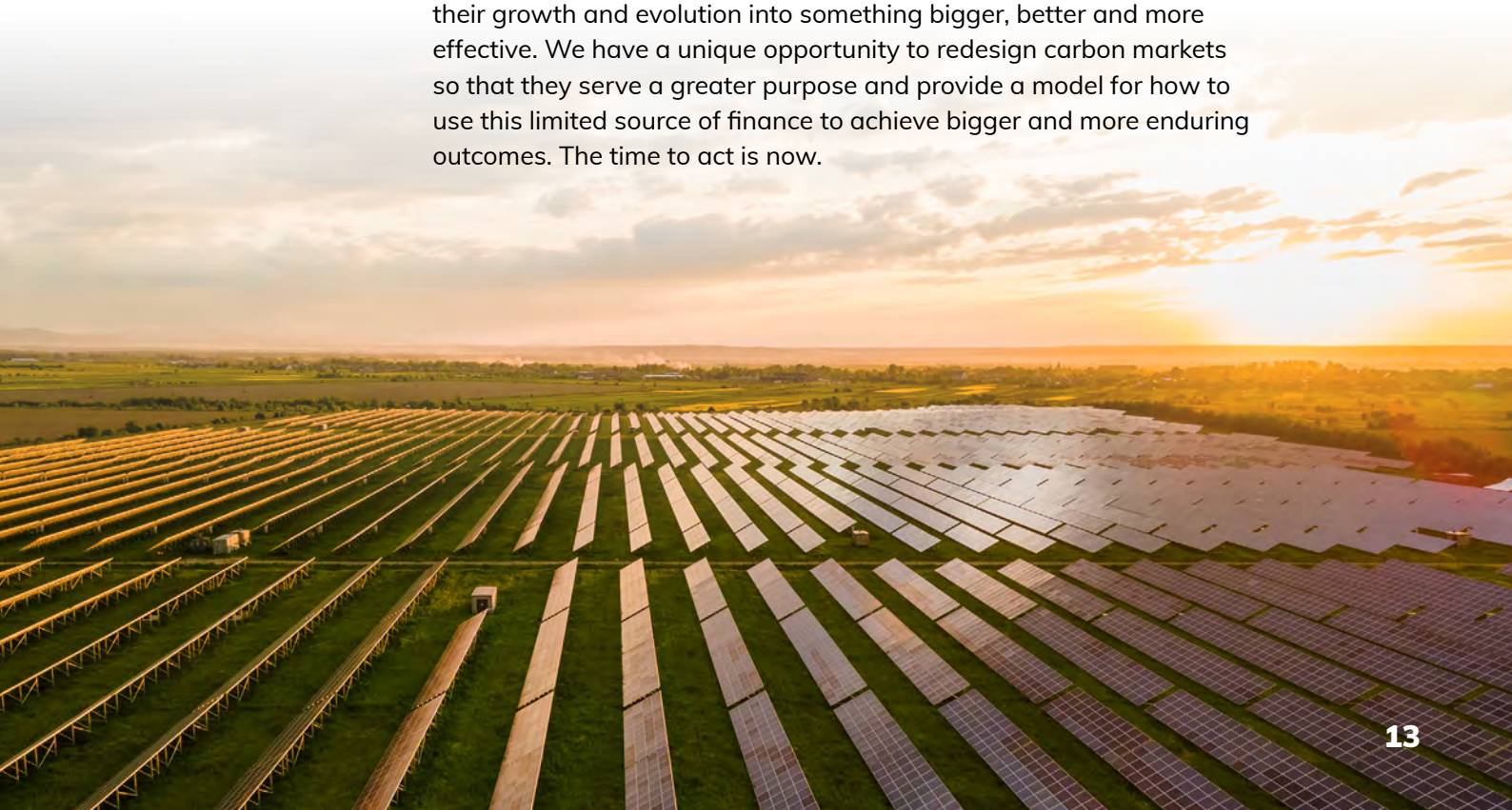
The evolution of carbon markets has not been without its challenges, and there are several which must be overcome. I continue to be both heartened and impressed by the desire of market participants to improve how the market operates. Over the last several decades the market has built a tremendous amount of knowledge that it can draw on to inform the path forward. Much of that expertise is already being applied through initiatives like the Integrity Council for the Voluntary Carbon Market (ICVCM) and the Voluntary Carbon Market Integrity Initiative (VCMI). In addition, technology is helping to both streamline and bring transparency to these markets, which will also go a long way in addressing any residual concerns people may have.

All of those improvements notwithstanding, there is more we can do, especially considering the need to achieve green transitions across a whole swath of economic sectors if we are going to keep climate heating below 1.5°C. In order for carbon markets to support this, we must recognize that many of the tools we are using were designed decades ago and for a very different purpose than what we need to achieve now. By relying on tools that do not ensure a broader transition while also creating complex and unworkable processes we have essentially been fighting climate change with one hand tied behind our collective backs.

But we can change this. The modifications I have proposed in this report are not radical and do not require wholesale changes to the underlying basis for how carbon markets work. They simply require that we start with the end in mind, plan for the day carbon finance will no longer be needed, and design this market so that it can achieve a bigger and more enduring objective. Embracing the transitional paradigm will also lead us, at times, to draw different conclusions than what our existing model would have led us to. We should not shy away from asking these questions and instead tackle them head on so that we can continue to focus on the long-range goal and not get caught up in short-term distractions.

A concerted effort to both strengthen the integrity of the market while refocusing its objective to embrace the green transition would have a tremendously salutary effect on the overall narrative. A revamped narrative focused on enabling the green transition ought to provide a much more compelling reason for buyers to invest in carbon and for governments to play a constructive role. Importantly, it would align with many of the recent statements of support, such as the recent announcement by the U.S. Government strongly affirming the importance of the voluntary carbon market in meeting global climate goals and as part of ambitious climate action.

This report has set out a number of suggestions framed around the need to consider the green transition as we think of the next generation of carbon markets. I do believe that a transition is taking place, and my hope is that by adding a new dimension to our collective thinking we can drive additional finance to tackle climate change. In particular, my hope is that my ideas around rethinking additionality, engaging governments, breaking down barriers to NCS projects and how to credit renewable energy projects serve as a catalyst for serious discussions about how we can develop a more coherent and compelling vision for carbon markets that supports their growth and evolution into something bigger, better and more effective. We have a unique opportunity to redesign carbon markets so that they serve a greater purpose and provide a model for how to use this limited source of finance to achieve bigger and more enduring outcomes. The time to act is now.



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