



The AMBACHTSHEER Letter

Sustainable Pension Design • Effective Pension Management

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REALLY INTEGRATING 'NET ZERO' INTO PENSION FUND INVESTING:

WHAT IT WILL TAKE

"'Net-Zero' carbon emissions won't just happen. We need to change on the scale of the Industrial Revolution at the speed of the Digital Transformation. This requires engaging all levels of government, business, and finance."

Mark Carney
Globe&Mail, April 27, 2023

"Metrics and targets are not a 'Net Zero' plan. A commitment is not a long-term business strategy - without the implementation of a credible and bona fide strategic transition plan. While the airwaves have been flushed with 'Net Zero' announcements, accompanying strategic actions have been amiss."

John Montgomery and Mark van Clieaf
Authors of *NET-ZERO BUSINESS MODELS*, Wiley, 2023

From Words to Actions

Way back in 2015, while he was Governor of the Bank of England, Mark Carney coined the phrase 'tragedy of the horizon' in a speech to Lloyd's of London. It was a clever rephrasing of 'tragedy of the commons', a term economists have long used to explain how free access to a valuable resource can lead to its excess use, and eventual deterioration. We reflected on his 'tragedy of the horizon' message on climate change in the [October 2016 Letter](#) titled "Governor Carney on Climate Change: Why Pension People Should Pay Attention". Eight years later, in the *Globe&Mail* article cited above, wordsmith Carney, now UN Special Envoy for Climate Action, is at it again with his observation that the transition to a 'Net Zero' economy requires change on the scale of the Industrial Revolution to be accomplished at the speed of the Digital Transformation.

But what does that really mean as a practical matter? The best answer to this question we have seen thus far is in the just-released book "Net-Zero Business Models" by veteran strategic business advisors John Montgomery and Mark van Clieaf. As motivation for writing the book, they share a telling statistic: while in a large sample of major corporations 75% had announced at least a partial 'Net-Zero' target, only 19% had produced quantified decarbonation strategies and related business plans. In 369 pages, the authors take the reader through five requisite topics: 1. Context, 2. Technical Foundations, 3. Four 'Net-Zero' Pathways, 4. Pathway Implementation, 5. System Change. This *Letter* extracts the book's key insights from the perspective of pension fund investing.

Context and Technical Foundations

Speaking to Carney's observation that the world requires change on Industrial Revolution scale at Digital Revolution speed, the book points to corporate customers and institutional investors as increasingly vocal change catalysts on the demand side. At the same time, governments are ramping up carbon policies and prices. All this is leading to making 2030 a critical milestone for reducing Green House Gas (GHG) emissions by 50%. This emerging target places corporate business models under severe transformational pressure.

This pressure in turn leads to a growing incentive to get the technical foundations of 'Net-Zero' business models right. This includes understanding the GHG Protocol, Reporting Standard, and the definitions of Scope 1, 2, and 3 GHG emissions. Scope 3 emissions with its 15 categories are especially difficult to quantify as they are not under a company's immediate control.¹ Next is the need for companies to determine their carbon intensity and assess their vulnerability to carbon taxes, which in turn translate into understanding their impacts on future revenues and profits. Finally, all this must translate into clear science-based emissions-reduction targets for corporations, and equally clear strategies to achieve them.

Four Pathways to 'Net Zero'

With the context and essential technical foundation established, the book proposes to place corporations into one of four categories, depending on the nature of their pathway to 'Net Zero':

Pathway One: 'Eco-Efficiency': companies can maintain their current business model and achieve 'Net-Zero' through eco-efficiency processes and systems. It is best suited for companies with low carbon intensity.

Pathway Two: 'Business Model Transformation': companies require a business model transformation, which can be incremental or complete. They create new zero-emission products or services, and may have to abandon their current business model. They have high carbon intensity and may have to reinvent the fundamental purposes of their business.

Pathway Three: 'Eco-Startups, New Ventures, Spinouts, Industry Disrupters': companies create entirely new 'Net-Zero' businesses.

Pathway Four: 'Industry Ecosystem Transformers': this is the path of companies that lead an entire industry transformation towards 'Net-Zero'. This path is open to Pathway One, Two, and Three companies who choose to become leaders in their industry.

The Pathway Framework helps corporate boards and management to address two fundamental questions:

1. Can our existing business model get us to 'Net-Zero' and be commercially successful through eco-efficiency process improvements and other actions like purchasing carbon credits and offsets?
2. Will achieving our 'Net-Zero' target and commercial success require us to fundamentally redesign our business model, strategies, and organization?

A 'yes' answer to either question leads to choosing the appropriate Pathway. A 'no' answer to both questions should lead to a corporate sale or windup plan.

Corporate Case Studies

Pathway One companies are defenders of their current business models. The book's examples are enlightening:

- Weyerhaeuser: a North American timberland company which has already achieved carbon neutral status because its forests remove and store 35M metric tons of CO₂ per year. It never cuts more trees than it grows. It plans further reductions in its Scope 1 and 2 emissions by consolidating operations to higher efficiency mills, and replacing fossil fuels with biomass fuels. It is a founding member of the Net-Zero Business Alliance.
- Microsoft: a multinational information technology and software company with a low carbon intensity business model. It is carbon neutral by investing in offsets and has recently committed to become carbon negative by 2030 across Scope 1, 2, 3 emissions by switching

to 100% renewable energy by 2025 and electrifying its internal vehicle fleet by 2030. It is committed to helping its customers reduce their carbon footprints by sharing its knowledge in data science, AI, and digital technology.

- Canada Goose Holdings: maker of performance luxury apparel with relatively low carbon intensity. It plans to be climate positive by 2030 through employing the dual strategies of reducing its emissions through renewable energy commitments, retrofitting its facilities with LED lights and using motion-controlled lighting systems, and at the same time investing in projects that reduce, avoid, or sequester emissions equal to 200% of its own Scope 1 and 2 emissions.

Pathway Two companies have accepted the reality that they must transform their business model to operate sustainably in a zero emissions economy:

- Walmart: the world's largest retailer is committed to achieving 'Net-Zero' across its global operations by 2040, with a focus of reducing the Scope 3 carbon intensity of its product portfolio. To date, 4,500 of Walmart's suppliers have signed up for Project Gigaton which aims to cumulatively avoid 1 billion metric tons of Scope 3 emissions by 2030. Regarding Scopes 1 and 2, it has identified five targets: renewable energy, energy efficiency, refrigeration, transportation, and stationary fuels.
- Rolls-Royce: a multinational aerospace and defence company has pledged to reach 'Net-Zero' from its own operations by 2030, and to play a leading role in enabling sectors in which it operates to reach 'Net-Zero' by 2050. The company has low Scope 1 and 2 emission intensity, but high carbon intensity across its Scope 3 emissions. It has a four-stage decarbonization plan: reducing its own Scope 1 and 2 emissions, designing engines to use 100% biofuels, investing in new low/no carbon emission businesses, and working with customers, regulators, and policy makers to increase the amount of permissible sustainable aviation fuel from 50% to 100%.
- Shell: one of the world's largest oil, gas, and power producers aspires to become a 'Net-Zero' energy business by 2050. It has established a 50% Scope 1 and 2 emission reduction goal, as well as a 20% Scope 3 reduction goal by 2030. To achieve these goals, it will invest in low-emission energy initiatives, eco-efficiency systems, and CO2 capture and storage facilities. Detailed plans beyond 2030 have yet to emerge.

Pathway Three companies are innovative new 'climate tech' ventures with no legacy fossil fuel histories. The book provides six interesting examples which we do not pursue here.ⁱⁱ However, the Pathway Four example is worth a look.

- Tesla: originally a Pathway Three company that evolved into a Pathway Four market disruptor by leading its industry to a tipping point, and in the process giving itself a key first mover advantage. In the words of the book, Tesla changed the perception of the e-car from something small and slow to something fast and sexy. Along with that change came long-range batteries, networks of supercharging stations, grants, tax incentives, and future bans on sales of fossil fuel-powered automobiles. Today Tesla is a global, vertically-integrated manufacturer of electric vehicles and power systems (e.g., solar panels). The financial markets have noticed. Tesla's July 2022 enterprise value was 13.6X Revenues, versus 1.1X Revenues for both Ford and GM.

While these case studies are enlightening, authors Montgomery and Van Clieaf are not done yet. In the last third of the book they address the challenging topics of systems thinking, leadership and why they are so critical to actually achieving 'Net-Zero' at both micro and macro levels.

Systems Thinking, Leadership, and Implementation

The best way to provide a flavour of their views in this final part of the book is through this insight:

- Organizational change: there are three levels of increasing difficulty: developmental (Pathway One), transitional (Pathway One or Two), and transformational (Pathway Two or Four).
- Domains of Systems Thinking: there are also three domains of systems thinking: Operational (needed for Pathway One), Business (needed for Pathway One, Two, or Three), Global (needed for Pathway Four).

Why do these concepts matter? The authors provide the example of the North American Electrical Power System, which has many sub-systems across the continent. The overall System is 52% fossil fuel-based today. Its successful Pathway Two transformation to 'Net-Zero' will require all three domains of systems thinking: Operational, Business, and Global.

Investing in a 'Net-Zero' World

What does all this mean for investing the globe's retirement savings and for a pension organization's investment function? Here are five answers based on the contents of this *Letter*:

- Accept Mark Carney's Industrial Revolution/Digital Transformation characterization of the emerging 'Net-Zero' world as reality.
- Read the Montgomery-van Clieaf book to get a good sense of the 'Net-Zero' implications for the worlds of sustainable business and investing.
- Assess the current ability of your investment organization (and/or those your fund outsources to) to operate effectively in the 'Net-Zero' world. For example, does it have the governance, technical skills, tools, and incentives to segment an investment universe into Pathway One, Two, Three, and Four companies? To devise investment/engagement strategies that recognize the different! risk/reward characteristics attached to the four Pathways? To assess the Systems Thinking capabilities of the Board and C-Suites of companies that are possible investment targets?ⁱⁱⁱ
- Address any shortcomings uncovered by the assessment of your own current governance and technical capabilities.
- Use the *Integrated Reporting Framework* discussed in the [April 2023 Letter](#) to inform your stakeholders on the progress your fund is making towards achieving its 'Net-Zero' goal.

Over to you!

Keith Ambachtsheer

Endnotes:

- Scope 1 GHG emissions come from the combustion of a company's fuels in stationary and mobile contexts. Scope 2 emissions are indirect, associated with the purchase of electricity, steam, heat, or cooling. Scope 3 emissions are also indirect that occur from a variety of activities both upstream and downstream in its value chain.*
- The six Pathway Three companies are Ecolibri, NuScale Power, Celsius Energy, CarbonCure, Universal Hydrogen, Zero.Avia.*
- There is an interesting emerging debate in the investment industry on the use of Machine Learning and Artificial Intelligence to address these information/assessment challenges. As just one example, can the emerging field of 'elemental cognition' help investors sort through massive databases containing detailed information on tens of thousands of companies?*

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