

# 1

## THE NET ZERO OPPORTUNITY

*“Every company and every industry will be transformed by the transition to a net zero world. The question is, will you lead, or will you be led?”<sup>1</sup>*

—Larry Fink, Chairman and CEO, BlackRock

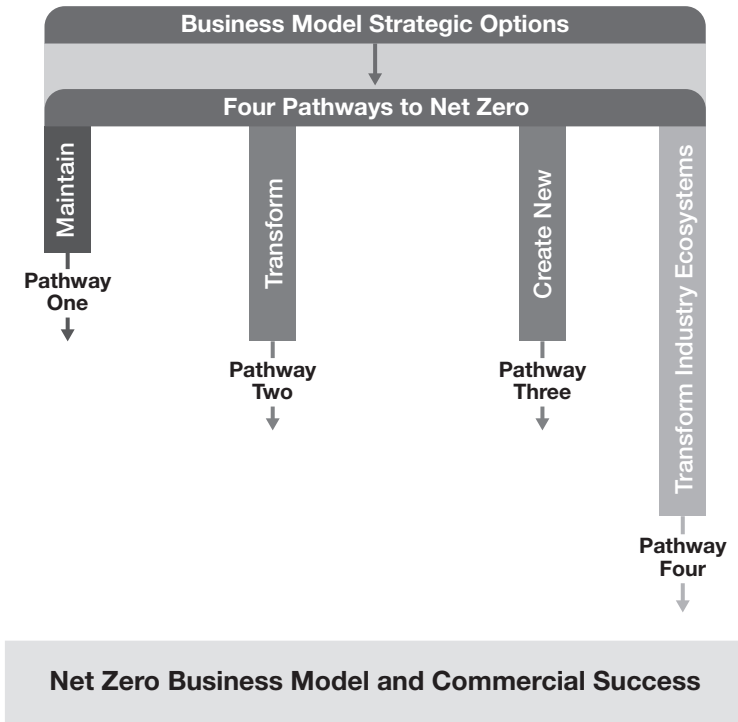
The shift from a fossil fuel-based economy to a net zero emission one is the biggest transformation project in human history (the Great Transformation). The global economy needs to achieve net zero emissions by 2050 to limit the rise in global temperature that began with the Industrial Age to a manageable 1.5°C. McKinsey & Company estimates that achieving a net zero emissions economy under the Net Zero 2050 scenario from the Network for Greening the Financial System will require \$275 trillion of cumulative investments in physical assets alone by 2050.<sup>2,3</sup>

The Great Transformation is huge, but humanity has successfully transformed the basis of the economy before. The global economy previously transitioned its primary energy source from wood to coal and from coal to

oil. Such transitions, however, were gradual and haphazard. The necessity to preserve a habitable planet for our children and grandchildren provides special urgency to the Great Transformation.

We have identified four strategic pathways companies can choose to achieve a net zero business model and commercial success in the Great Transformation, which we call the four “Pathways” and discuss at length in Part III, Chapters 5 through 10 (see Exhibit 1.1.). We briefly introduce the four Pathways here to emphasize the key point that a company’s plans to eliminate the greenhouse gas (GHG) emissions from its business model must be integrated with its fundamental business and financial strategy.

**EXHIBIT 1.1 The four Pathways to net zero and commercial success**



## THE TRANSFORMATIONAL FORCES OF NET ZERO

Companies are under increasing transformational pressure to participate in the Great Transformation. Companies' stakeholders are pressuring them to join in the Great Transformation and will keep the pressure on until they have achieved net zero emissions. These transformational forces likely will get stronger as pressure builds to transition beyond net zero to a net negative or regenerative economy and one that also meets the UN Sustainable Development Goals (SDGs). Companies cannot escape these transformational forces, but they can proactively manage them to emerge as winners in the emergent net zero emissions economy.

Companies need to leverage these transformational forces to develop plans to conform their business models to a net zero emissions economy. One of the surest ways for companies to win in the emergent net zero emissions economy is to successfully strip the GHGs out of their business models. Companies must first conduct a complete inventory of their GHG emissions, as will be discussed in Chapter 2. This process is not merely a data collection exercise but an opportunity to identify a company's carbon dependencies—where and how much carbon enters the business process and business model, where and how much emissions are generated, and what processes and activities generate GHG emissions. This information-gathering process is time consuming but critical to determine which of the eco-efficiency and business transformation strategies discussed in Part III are appropriate.

Companies also need to use their GHG emissions data and information about their carbon dependencies to assess the financial impacts of this data and information on their business model in the event of the possible escalation in carbon prices, as will be discussed in Chapter 3. The purpose of these scenario-planning exercises is to identify the inputs and processes in the business model that have the greatest carbon dependencies to carbon emissions and their financial implications. If, for example, a core business process has high carbon intensity and there are no alternative solutions, then there is a high carbon dependency that may require a transformation of the business model.

There is also an opportunity for companies to use their GHG emissions data, information about their carbon intensities and results of testing for a carbon shock, also discussed in Chapter 3, to analyze their industries to identify the forces shaping them and to develop scenarios of what their net zero industries will look like in the future. This process will help companies identify what they need to do to compete successfully in their industries as they transition to net zero. It is challenging for companies to develop visions of the future net zero state of their industries, but the solution is to develop different scenarios and update them as the years progress and events unfold. To conduct this kind of scenario planning, however, companies must understand the transformational forces bearing down upon them:

**Governments.** After decades of talk, sovereign nations are getting serious about taking action to reduce GHG emissions. The European Union (EU) and 192 countries signed the Paris Agreement agreeing to reduce GHG emissions to limit the global temperature increase to 2°C while working to limit the increase to 1.5°C.<sup>4</sup> The EU and 33 countries have set net zero emissions targets and more than 100 countries have proposed, or are considering, net zero emissions targets.<sup>5</sup> The EU, for example, has adopted a 55% net emissions-reduction target from 1990 levels by 2030.<sup>6</sup>

These international commitments are resulting in carbon taxes and cap-and-trade trading systems aimed at reducing GHG emissions. Twenty European countries have adopted carbon taxes that range from less than €1 per metric ton of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) emissions in Poland and Ukraine to more than €100 per metric ton in Sweden, Lichtenstein, and Switzerland. The scope of the carbon taxes varies by country. Spain, for example, only taxes fluorinated gases. In addition, all member states in the European Union are part of the EU Emissions Trading System, a market designed to trade a capped number of GHG allowances. Switzerland and the United Kingdom have their own emission trading systems.<sup>7</sup>

Canada has also implemented carbon taxes on companies. The federal minimum price started at CD\$20 per metric ton of CO<sub>2</sub>e in 2019. In 2022, the tax is CD\$50 per metric ton of CO<sub>2</sub>e and will increase by CD\$15 per year until it reaches CD\$170 per metric ton in 2030. If Canadian provinces

and territories do not accept the federal standard as the carbon tax default, they may set their own carbon taxes that meet or exceed the federal standard or adopt a cap-and-trade system to achieve the same result. Currently four provinces have accepted the federal standard, four have set their own carbon taxes, and two have adopted cap-and-trade systems.<sup>8</sup>

The United States has not adopted a carbon tax or cap-and-trade emissions trading system at the federal level, but 11 states are members of the Regional Greenhouse Gas Initiative designed to cap and reduce CO<sub>2</sub> emissions from the power sector and California has had a cap-and-trade system in place since 2013. China has also not adopted a carbon tax or cap-and-trade emission trading system at the national level, but several Chinese cities and provinces have implemented cap-and-trade programs.<sup>9</sup>

Publicly listed companies have become accustomed to disclosing and discussing how they address the climate-related risks to their businesses, but as will be discussed in Chapter 13, the EU and the United States have proposed securities regulations that would require companies to disclose their GHG inventories and other climate-related information starting with the 2023 fiscal year. The UK has already adopted regulations requiring public companies to make climate-related disclosures.

**Institutional investors.** BlackRock, the world's largest asset manager, has put public company CEOs and boards on notice that they must have strategies and transition plans to conform their business model designs to a net zero emissions economy.<sup>10,11</sup>

CPP Investments is a global investment management organization that invests the assets of the Canada Pension Plan (CPP) Fund in the best interests of the CPP's contributors and beneficiaries. Where climate change-related factors are material to the company, CPP Investments expects portfolio companies to have credible plans to reduce their GHG emissions. CPP Investments has proposed a three-step approach to GHG reporting and abatement that entails each company: 1) assessing its current baseline emissions, 2) identifying actions that can cost-effectively cut emissions now and 3) determining its projected abatement capacity under different carbon price assumptions.<sup>12</sup> CPP Investments seeks to

take an active role in financing emissions reduction and supporting the decarbonization of assets.

The reallocation of capital by investors to sustainable asset classes puts pressure on companies to participate in the Great Transformation. The Glasgow Financial Alliance for Net Zero (GFANZ), for example, which includes over 450 institutional investors, banks, and insurance companies with a combined \$130 trillion in assets under management, has committed to net zero and key milestones along the way.<sup>13</sup>

If companies fail to listen to their institutional shareholders, they may place shareholder proposals in the annual proxy statement to force companies into action. Costco's shareholders, for example, resoundingly approved a proposal without management support brought by Green Century Capital Management at the 2022 annual meeting requesting that "Costco adopt short, medium and long-term science-based [GHG] reduction targets, inclusive of emissions from its full value chain, in order to achieve net zero emissions by 2050 or sooner and to effectuate appropriate emissions reductions prior to 2030."<sup>14,15</sup>

If a company does not act quickly enough to align with a net zero emissions economy, its shareholders may replace its directors. Engine No. 1 led a coalition of institutional investors, for example, and was successful in replacing three directors at Exxon Mobil with its own nominated candidates who subsequently have acted as boardroom catalysts to inspire the company to develop a net zero transition plan, as will be discussed in Chapter 6.<sup>16</sup>

If a company has not developed a credible transition plan, it may end up in court like Shell plc (Shell). The Hague District Court in the Netherlands found that Shell owed a duty of care to Dutch citizens to prevent injury resulting from the carbon emissions associated with its operations and products.<sup>17</sup> Even though Shell's most recently published climate strategy contemplated reducing the carbon intensity of its products by 20% by 2030, 45% by 2035, and 100% by 2050, the court ordered Shell to reduce its overall emissions, including emissions from the use of its products, from 2019 levels on a net basis by 45% by 2030.

**The value chain.** Companies are under pressure to quantify and reduce their Scope 3 emissions, which are their indirect GHG emissions, such as those resulting from customers' downstream use of their products or those resulting from the upstream production of the raw materials used in their products. To be discussed further in Chapter 2, the intent behind the 15 categories of Scope 3 emissions is to encourage collaboration between companies to first gather the downstream and upstream emissions data from their value chains and then reduce emissions.

As a result, companies seeking to achieve net zero place increasingly stringent emissions-reduction requirements on their suppliers. Walmart, the world's largest retailer, for example, has enlisted over 4,500 companies in its supply chain network to eliminate a gigaton of GHG emissions from its value chain by 2030, as will be discussed in Chapter 6.<sup>18</sup>

**Customers.** Customers increasingly want companies to deliver sustainable and carbon-free products and services. A recent poll showed consumer sentiment toward electric vehicles may be reaching a tipping point in the United States, spurred, in part, by recent hikes in gasoline prices. In April 2022, 40% of consumers surveyed expected to own an electric vehicle within five years, up from only 18% in 2018.<sup>19</sup> As they become knowledgeable about the principles of circularity, consumers will likely also increasingly want carbon-free and circular products and services.

**Climate change.** Extreme weather events, heat waves, droughts, floods, and wildfires are turning up the pressure on companies to take action to reduce their GHG emissions. In 2022, India experienced its hottest March in the 122 years since weather records have been recorded there.<sup>20</sup> In July 2022, Europe experienced another heat wave with the UK experiencing its highest recorded temperatures in history and wildfires burned crops in France, Spain, Portugal, and Italy. At one point in July 2022, over 100 million Americans were under heat advisories. The American West is in a severe drought with the Great Salt Lake in Utah drying up and water levels of the major reservoirs on the Colorado River declining rapidly.<sup>21</sup> As extreme weather events, droughts, and wildfires increase around the globe, the pressure on companies to play their part in the transition to a net zero economy will only intensify.

## MANAGING THE TRANSFORMATIONAL FORCES OF NET ZERO IN A VUCA WORLD

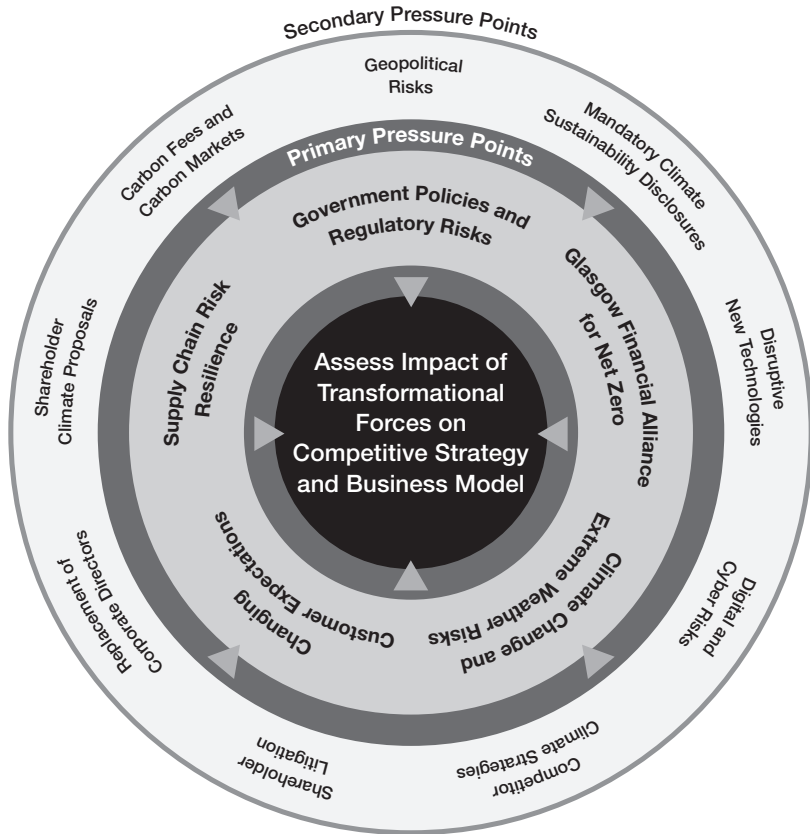
Managing in an increasingly VUCA world will make it more challenging for companies to manage the transformational forces of net zero. The acronym VUCA, which stands for volatile, uncertain, complex, and ambiguous, originated in the U.S. Army War College to describe the environment in which leaders of complex organizations operate.<sup>22,23</sup> In addition to managing the transformational forces of net zero, companies face an unstable operating environment with shifting economic, environmental, geopolitical, health, and technology risks. The Russia-Ukraine war, for example, has driven up the cost of fossil fuels and interrupted energy supplies, particularly in the EU. The conflict has also interrupted exports of grain and fertilizers, causing food insecurity around the world. The Covid-19 pandemic, in its third year as of this writing, has disrupted economies and wreaked havoc on global supply chains. Now, high inflation challenges global economies. Politics seem hopelessly polarized in many countries. This VUCA world is the new normal (see Exhibit 1.2).

Asset owners, asset managers, and other institutional investors also need to manage the transformational forces of net zero and the complexities of a VUCA world into their investment portfolio designs and how they engage with their portfolio companies. These investment professionals face the challenge of avoiding owning assets on the wrong side of the net zero transition while identifying those best placed to either navigate the transition successfully or provide solutions to support it.

Many investment professionals see government policy as the principal driver of the Great Transformation but CPP Investments with over \$500 billion under management as of 30 September 2022 takes a more nuanced and strategic approach to long-term investment management. Richard Manley, Chief Sustainability Officer and Head of Sustainable Investing at CPP Investments, notes that CPP Investments uses five different



EXHIBIT 1.2 The transformational forces of net zero in a VUCA world



variables that echo the transformational forces that *impact* the transition to a net zero economy: government ambition and supporting regulations, development of global reporting standards and carbon markets, corporate progress toward net zero targets, development of new technologies and changing consumer and corporate behavior. Collectively, companies and investors need to adjust their approaches to net zero transition plans as these variables change to deliver the optimal net zero transition “that removes the most greenhouse gases from operations, while pursuing opportunities that create value for the business and its stakeholders.”<sup>24</sup>

## WHAT DOES “NET ZERO” MEAN?

Larry Fink, BlackRock’s CEO, defined a net zero economy in his 2021 letter to CEOs as “one that emits no more carbon dioxide than it removes from the atmosphere by 2050, the scientifically-established threshold necessary to keep global warming well below 2°C.” BlackRock’s statement is limited, however, to carbon dioxide (CO<sub>2</sub>) and the 2°C threshold is above the 1.5°C. threshold most scientists believe is the crucial one.

For the purposes of this book, the term “net zero” signifies an economy or a business model that produces no net GHG emissions by reducing and eliminating absolute emissions upstream and downstream across its entire value chain to support the target to limit the rise in global temperature to 1.5°C. Any remaining GHGs are offset with offsets and carbon capture.

For the purposes of this book, GHG emissions include CO<sub>2</sub> and all other GHGs enumerated in the *GHG Protocol*, discussed in Chapter 2, including methane, which is at least 25 times more potent than CO<sub>2</sub> at trapping heat in the atmosphere. Neither a net zero emissions economy nor a net zero business model eliminate all GHG emissions and, therefore, the use of fossil fuels. Net zero is not zero emissions. The economy and businesses will still produce CO<sub>2</sub> and other GHGs but any remaining production of hard-to-eliminate GHGs will be offset through carbon credits and carbon capture and negative emissions technologies and nature-based solutions for carbon capture.

The term net zero is not synonymous with the term “carbon neutral.” People often conflate the terms, but they have very different meanings. A corporation may claim to be carbon neutral when it offsets its emissions by purchasing carbon credits or paying to remove carbon from the atmosphere without necessarily reducing or eliminating any of its own GHG emissions.

## GOING BEYOND NET ZERO

Achieving a net zero economy by 2050 is a worthy goal but will probably not be enough to stabilize the climate. This is because the economy

will continue to emit billions of metric tons of heat trapping GHGs into the atmosphere each year until it achieves net zero in 2050. Ultimately, the economy will need to transition from a net zero economy to a net negative one.

For the purposes of this book, a “carbon negative” economy or company is one that sequesters or eliminates more GHG emissions than it produces. Some companies, such as Microsoft, have begun to challenge net zero as the gold standard of corporate GHG emissions reduction. Microsoft has committed to be carbon negative by 2030 and to remove from the atmosphere all the carbon emitted from its operations since its incorporation in 1975, also discussed in Chapter 6.<sup>25</sup>

NextEra Energy, Inc., a Florida utility and one of the world’s biggest renewable energy developers, is also moving beyond net zero. NextEra has committed to decarbonize its business to achieve “real zero” by 2045 by expanding its solar power generation capacity, converting its natural gas power plants to run on green hydrogen, and increasing its battery power storage capacity 100-fold. The company plans to use its expanded solar power capacity to generate green hydrogen. NextEra Energy expects to achieve real zero without using carbon capture, credits, or offsets.<sup>26</sup>

NextEra is engaged in three critical transformations over the next 5 to 30 years (see Appendix 1.1). The first is the transformation of its business model to real zero emissions. The second is its strategy and plan to work within the power sector to drive its transformation to real zero emissions through transformational investments, including green hydrogen gas turbines for carbon-free energy in the early 2040s and building out the power transmission, distribution, and battery storage backbone infrastructure for a smart, clean energy power grid. The third is to help lead the transformation of the U.S. economy to zero emissions by becoming the preferred partner for customers to transform their business models to net zero emissions and help customers and the United States achieve real zero emissions and the decarbonization of the economy. NextEra Energy intends that its strategy, plan, and blueprint will establish a new power industry

standard for business model and power industry ecosystem transformation and decarbonization.<sup>27</sup>

Many businesses and industries will need to become carbon negative like Microsoft or achieve real zero emissions like NextEra because achieving a net zero economy is not the destination but a milestone on a longer journey, first to a carbon-negative global economy and then to a regenerative one that operates within the carrying capacity of the planet.

Johan Rockstrom from the Stockholm Resilience Centre identifies climate change caused by GHGs as one of nine human caused threats to components of the climate regulation system of the biosphere, including biodiversity loss, ocean acidification, ozone depletion, atmospheric aerosol pollution, freshwater use, biogeochemical flows of nitrogen and phosphorus, land-system change, and release of novel chemicals.<sup>28,29</sup> Each component has a maximum threshold, a planetary boundary that cannot be exceeded without putting life at risk. The race is on to achieve a net zero economy before the climate change threshold is breached (see Appendix 1.2).

Economist Kate Raworth, author of *Doughnut Economics*, calls these planetary boundaries “ecological ceilings” and combines them with the concept of “social foundations” to ensure everyone enjoys life’s basic essentials, including food, water, housing, education, income and work, health, peace and justice, and gender equality (see Exhibit 16.1).<sup>30,31</sup> Ultimately, to be sustainable, the economy and the companies within it must operate within these planetary thresholds and ensure people’s social foundations are met.

The United Nations recognizes a regenerative economy must not only be sustainable economically but also environmentally and socially. In 2015, the UN, with the support of 193 countries, adopted 17 Sustainable Development Goals (SDGs), including Goal 7, Affordable and Clean Energy; Goal 11, Sustainable Cities; and Goal 13, Climate Action, to achieve a better and more sustainable future by 2030 (see Appendix 1.3).

While each individual goal is important, all goals are interconnected and collectively provide a blueprint for a peaceful and prosperous future

for people and the planet that transcends and includes a net zero economy. Many corporations, including Nestlé, ENI, and Vattenfall discussed in this book, have also incorporated the SDGs in their business strategies and net zero transition plans.

While the focus of this book is on net zero business models and the achievement of a net zero emissions global economy, there is a bigger opportunity for companies to think beyond net zero in crafting their long-term strategies to compete successfully in the net zero global economy and, more importantly, to lead the way to a sustainable and regenerative future.

## **WHAT DOES THE TRANSITION TO A NET ZERO ECONOMY LOOK LIKE?**

Unfortunately, BlackRock's call to action contains little guidance about what a net zero economy looks like and what should be the core elements of a credible, bona fide, and even legally defensible net zero transition plan. The International Energy Agency (IEA) published a blueprint for the energy sector outlining how the global economy can achieve net zero emissions by 2050.<sup>32</sup> The IEA is careful to declare that its blueprint is not *the* blueprint but just one possible pathway to a net zero economy. Given recent disruptions in global energy markets caused by the Russia-Ukraine war, the IEA is in the process of updating its blueprint to better incorporate geopolitical risks.

Some countries have also promulgated country-specific roadmaps of how their national economies can achieve net zero emissions by 2050, such as the United Kingdom's UK Net Zero Strategy: Build Back Greener.<sup>33</sup> These roadmaps are useful in highlighting that achieving a net zero emissions economy will require a nonlinear, creative, iterative process that involves a variety of solutions to limit the rise in global temperatures to 1.5°C by 2050 and the domains of systems thinking, as will be discussed in Chapter 13.

The online En-ROADS Climate Solutions Simulator, a joint project of Climate Interactive and the MIT Management Sustainability Initiative, provides users with a better sense of how various combinations of these solutions will work in concert.<sup>34</sup> The simulator identifies the principal

contributors to global warming, including GHG emissions, deforestation, and the relative contributions to GHG emissions of oil, natural gas, and coal. The simulator allows users to adjust the mix and intensity of solutions to quickly model strategies to mitigate emissions to limit global warming to 1.5°C by 2050. The simulator quickly shows which actions, such as eliminating methane emissions, will have the biggest positive impact on limiting global warming.

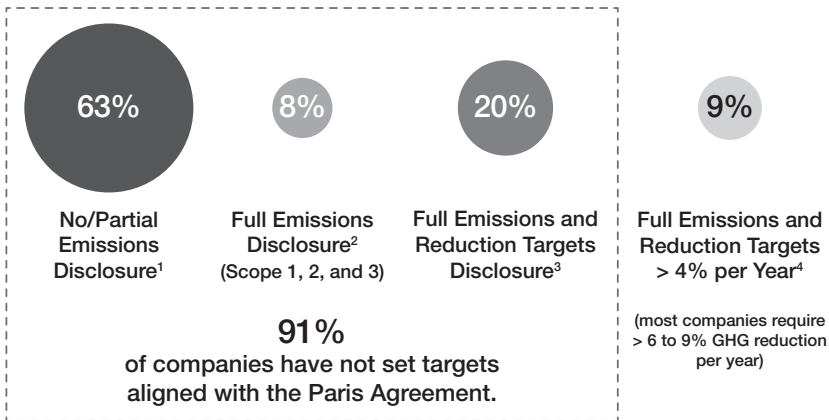
Using the simulator quickly confirms that fossil fuels—coal, petroleum, natural gas, and methane—are the largest contributors to global warming, generating about 70% of total GHGs. Using the simulator also confirms that achieving a net zero economy is simply not possible without reducing or eliminating GHG emissions from combusting fossil fuels. Spending time on the simulator brings to life models such as the IEA blueprint, the UK Net Zero Strategy, and the Net Zero 2050 scenario from the Network for Greening the Financial System discussed earlier because it allows users to quickly design and model many pathways that could achieve a net zero economy.

Collectively, the economy has a long journey ahead to net zero. According to a World Economic Forum and Boston Consulting Group analysis of Carbon Disclosure Project and Refinitiv data, only about 9% of companies have set net zero emissions targets and reduced their emissions. Most of the companies that have reduced their emissions, however, have not achieved a reduction of emissions at an annual rate sufficient to achieve a 50% overall reduction in emissions by 2030 (see Exhibit 1.3).<sup>35</sup>

Many companies have set some net zero emission targets, but most still do not know what this means at the operating level. Fewer companies have detailed transition plans of how they will get to net zero by 2050 or how to achieve 25 to 30% reductions in GHG emissions by 2025 and 50% reductions by 2030. Fortunately, many companies, including Microsoft, NextEra, Nestlé, Ørsted, Vattenfall, and other companies discussed in this book, have already promulgated comprehensive net zero transition plans that can help companies design their own. A few companies such as

## The Net Zero Opportunity

### EXHIBIT 1.3 91% of companies have yet to set targets aligned with Paris Agreement goals



**Note:** <sup>1</sup>Companies that do not disclose emissions data or disclose only (parts of) Scope 1 and/or 2 emissions; <sup>2</sup>Companies that fully disclose Scope 1+2+3 emissions; <sup>3</sup>Companies that fully disclose all emissions, AND had an emission reduction target in 2019; <sup>4</sup>Companies that fully disclose all emissions, had an emission reduction target in 2019, AND reduced emissions 2018 vs. 2019 by > 4%.

Source: Boston Consulting Group based on Carbon Disclosure Project data and Refinitiv data from 2018 to 2020.

Ørsted can provide companies with additional guidance because they have largely completed their transformation to a net zero business model that is also commercially successful.

## THE NET ZERO OPPORTUNITY

The real opportunity for companies lies in bridging the gap between their net zero transition plans and their implementation. The need to develop such a credible and bona fide transition plan invites companies to lead the transformation to a net zero economy. Leading the transformation might mean developing new carbon-free products and services, redesigning a business model to be carbon-free, creating an entirely new innovative business, or leading a complete transformation of an industry. These kinds of initiatives will naturally align a transition plan with a company's overall purpose, strategy, and vision, giving it pull to complement the push provided by the transformational forces of net zero. This will transform net zero transition plans from something being forced upon companies into

something companies can enthusiastically stand behind because implementing them will make them better businesses.

Companies that treat creating a net zero transition plan as merely another item for their ESG checklists will miss the opportunity to align the plan with their overall purpose, strategy, and vision to create enterprise value by creating products and services aligned with a net zero, and circular, economy. Generally, if someone brings up a climate-related issue in the boardroom, the board will say, “Give it to the Chief Sustainability Officer,” and the issue never comes back to the board. The transition to a net zero emission business model, however, is a business strategy issue that belongs in the boardroom because it may require a fundamental redesign of the business model and allocation of capital. Creating a net zero transition plan goes to the core of the fiduciary duties of corporate directors. Net zero is not only about reducing GHG emissions but also about core business strategy. Companies have also found that taking climate action delivers many benefits, finding it helps improve brand reputation, increases investor confidence, boosts resilience against regulations, and achieves cost reductions.

Having a credible net zero transition plan aligned and fully integrated with a company’s current strategy and vision may not be enough to achieve a net zero business model. For many companies, especially those with high GHG emissions, achieving net zero will require a complete transformation of their business models and an overhaul of their strategies and visions. Companies need to get all their stakeholders behind their net zero transition plans to optimize the probability of success because it will be a long journey to achieve net zero by 2050.

### **SUMMARY: WHERE TO BEGIN**

In many companies, climate-related programs get delegated to the sustainability or ESG function. To achieve a net zero business model, however, companies need to fully integrate their net zero transition plans into their overall business strategy and operations. To succeed, companies need to



make the transition to a net zero business model integral to their core business strategy.

The biggest challenge, however, will not be how to come up with net zero transition plans but how to put them into action. Implementing a net zero transition plan may require change leadership and a transformation strategy, as will be discussed in Chapter 12. Companies need to assess the systems-thinking capacities of their current management teams to ensure they have the requisite strategic and systems-thinking capabilities to be able to implement a net zero transition plan, as will be discussed in Chapter 13.

For starters, however, companies need valid, accurate, and even third-party verified data about their total Scope 1, 2, and 3 GHG emissions to understand the gap between their current business models and their future net zero business models. The size of the gap varies from industry to industry depending on its carbon intensity. To address the gap, companies need to understand their carbon intensity in terms of metric tons of CO<sub>2</sub>e per million dollars of revenue. Chapter 2 discusses the *GHG Protocol*, Scope 1, 2, and 3 emissions, and how companies can analyze their total GHG footprints.

Companies that have already inventoried their GHGs and set science-based emissions-reduction targets, to be discussed in Chapter 4, can use Part II (Chapters 2 through 4) as reference material and skip directly to Part III (Chapters 5 through 10).

Companies that have not inventoried their GHGs and set science-based emissions-reduction targets can use Part II as a primer on the *GHG Protocol*, carbon intensity, carbon shock stress testing, and setting science-based emissions-reduction targets.

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