

The Case for Corporate Action on Climate Change

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On June 2, 2017, President Donald Trump announced his decision to withdraw from the Paris Agreement on climate change. This decision was one of a series of several actions taken by the current Administration to reverse the climate initiatives that had been put into place over the previous eight years under President Barack Obama.

With these actions, the federal government has relinquished the leadership role it had assumed on climate change during the Obama years. It has done so at a time when a consensus has coalesced in the scientific community around the facts that the climate is changing, these changes are due in large measure to human activities, and the consequences of climate change pose a grave threat to the environment and modern society. This consensus was documented most recently in the *Climate Science Special Report—Fourth National Climate Assessment*,¹ which was released by the Trump White House on November 17, 2017.

That report—which was prepared by more than 300 U.S. scientists and peer-reviewed by the National Academy of Sciences—found that “[t]rends in globally averaged temperature, sea level rise, upper-ocean heat content, land-based ice melt, arctic sea ice, depth of seasonal permafrost thaw, and other climate variables provide consistent evidence of a warming planet.”² Describing such “observed trends” as “robust and . . . confirmed by multiple independent research groups around the world,” the report concluded that “many lines of evidence demonstrate that it is *extremely likely* that human influence has been the dominant cause of the observed warming since the mid-20th century.”³ This Comment is premised upon this unambiguous scientific determination.

One might think that actions taken by the federal government to stifle regulation on virtually *any* topic would be embraced by major industry. But that is far from the case in this instance. On May 10, 2017, the chief executive officers of 30 major corporations wrote an open letter to the president expressing their “strong support for the United States remaining in the Paris Climate Agreement,” in a last-ditch effort to persuade him that the American economy, on balance, would benefit from the accord.⁴ Moreover, almost 1,000 businesses (along with 14 states and hundreds of cities and academic institutions) have formally pledged to achieve emissions reductions consistent with the Paris Agreement, notwithstanding the president’s decision to withdraw.

But opposition to the Trump Administration’s policy of climate denial is by no means universal in the business community. Major trade associations, like the U.S. Chamber of Commerce and the National Association of Manufacturers (which have long opposed federal climate action), and a number of major energy companies voiced support for the president’s decision to abandon the Paris Agreement, and the Chamber and scores of local business organizations had actively opposed the Obama Administration’s Clean Power Plan.⁵

Thus, corporate America does not speak with one voice on climate change. On the one hand, hundreds of companies recognize the gravity of the environmental, social, and economic disruption that the majority of climate scientists are predicting, and are taking action to reduce their exposure to the financial risks of climate change, quantify and control their greenhouse gas emissions, and adapt to

1. U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE SCIENCE SPECIAL REPORT—FOURTH NATIONAL CLIMATE ASSESSMENT (2017), *available at* https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf.

2. *Id.* at 35.

3. *Id.*

4. *See CEOs of Major U.S. Companies Urge Trump: Stay in Paris*, B TEAM, May 10, 2017, <http://bteam.org/announcements/30-major-ceos-call-on-trump-stay-in-paris/>. Companies included as signatories include, but are not limited to, the following: Dow Chemical Group, 3M, Bank of America, E.I. du Pont de Nemours, Procter & Gamble, General Electric, Campbell Soup, Goldman Sachs, Cargill, Citigroup, Johnson & Johnson, Tesla, Coca-Cola, JPMorgan Chase, Morgan Stanley, and Walt Disney.

5. In fact, the Chamber and numerous local business organizations filed an *amici curiae* brief opposing the Clean Power Plan in *State of West Virginia et al. v. U.S. Environmental Prot. Agency*, No. 15-1363, 2016 WL 1274108 (D.C. Cir. Jan. 21, 2016).

impacts either now occurring or just over the horizon. Many of those companies have come together in coalitions organized to foster cooperation in the effort, and some have even formed an organization (called the Climate Leadership Council)⁶ advocating for enactment of a federal carbon tax aimed at lowering emissions on a national scale. At the same time, other companies seem content to follow the passive approach that the federal government is taking, apparently hoping that it is a false alarm being sounded by climate scientists. As of 2015, only 29% of companies reported that they consider climate change to be a “quite or very urgent issue,” and almost 32% did not see it as urgent at all.⁷

It should come as no surprise that a significant number of U.S. corporations have not yet come to grips with climate change, and are instead choosing to focus on more immediate priorities. And because of investor pressure, compensation packages structured around that pressure, and a limited understanding of their fiduciary responsibilities under the concept of “shareholder primacy,” those priorities center on maintaining robust quarterly profits, notwithstanding any long-term problems that may be looming. Thus, it is understandable that some corporate managers have been reluctant to expend significant resources on a problem that is anticipated to unfold over decades, under circumstances where no law or regulation imposes an obligation to do so.

But what may be understandable is not necessarily good business sense. The symptoms of climate change are now right before our eyes—sea levels are rising measurably; glacial and polar ice is melting around the globe; wildfires are raging throughout the western United States; insects are decimating forests and crops; tick and mosquito populations are skyrocketing; and historic storms are becoming commonplace. And what we can now so easily perceive is just the beginning. Climate scientists are warning that climate “surprises” (e.g., shifts in ocean currents causing dramatic and abrupt changes in U.S. and global weather patterns) cannot be ruled out,⁸ and that dramatic emissions reductions must be achieved in the next few decades if we are to avoid irreversible impacts of a magnitude that could disrupt not only the environment, but the social and economic fabric that supports the worldwide supply chain and allows business to prosper. Faced with these stark predictions, socially responsible companies are coming to the conclusion that meaningful climate change mitigation should not be stifled by Washington’s erratic behavior or by quarter-by-quarter tunnel vision.

The good news is that actions taken by the private sector, along with other levels of government, could—at least temporarily—fill the gap left by the federal government’s abandonment of the climate field. Businesses, in particular, can play an outsized role in reducing the nation’s greenhouse gas emissions, due to the concentrated nature of their emission sources, as well as their ability to tap into technological expertise and significant capital. In fact, a recent report issued by CDP (previously called the Climate Disclosure Project) and the We Mean Business collaborative indicates that by 2030, actions taken by the business sector alone could cut greenhouse gas emissions by 3.7 billion tons per year, representing 60% of the reductions pledged by the United States in the Paris Agreement.⁹

This Comment discusses why the time has come for the directors and officers of the major companies that have not yet come to grips with the issue of climate change to do so. As discussed below, corporate directors and officers have a fiduciary obligation to be reasonably well-informed on material issues affecting their businesses. Due to the substantive work of the scientific community over the past two decades, a mountain of information has now accumulated regarding the nature and scope of the climate problem, and (with the assistance of internal and external experts) corporate managers can utilize that information in their strategic decisionmaking.

If they were to do so, they would see that a fundamental and wide-ranging market shift is in the works because of climate change. That market shift is being driven by risk management concerns (regarding the potential physical and the ultimately inevitable regulatory impacts of climate change), pressure from the capital markets (i.e., investors and banks that are directing more of their capital to “sustainable” enterprises), consumer expectations, reputational considerations, supply chain concerns, and the costs and availability of energy. Even in the absence of any current federal regulatory mandate, common business sense provides ample reason for inquiring carefully into how such market forces may affect a given company, and determining what, if any, actions need to be taken to protect and advance that company’s business interests in the coming years.

I. Background

The evidence that climate change is taking hold around the world is unmistakable.¹⁰ Average global temperatures have risen 1.5 degrees Fahrenheit since 1970,¹¹ and the

6. Climate Leadership Council, *Home Page*, <https://www.clcouncil.org/> (last visited Mar. 12, 2018).

7. Daina Mazutis & Anna Eckardt, *Sleepwalking Into Catastrophe: Cognitive Biases and Corporate Climate Change Inertia*, 59 CAL. MGMT. REV. 74-108 (2017).

8. See, e.g., Sabrina Shankman, *Climate Change Is Happening in the U.S. Now, Federal Report Says—In Charts*, INSIDE CLIMATE NEWS, Nov. 7, 2017, <https://insideclimatenews.org/news/06112017/infographic-climate-change-happening-now-human-role-national-climate-assessment-sea-ice-temperature-rainfall-extreme-weather>.

9. Paul Simpson, *The Business End of Climate Change*, HUFFINGTON POST, June 28, 2016, https://www.huffingtonpost.com/paul-simpson/the-business-end-of-climate_b_10717730.html.

10. Ulrich Cubasch et al., *Introduction*, in CLIMATE CHANGE 2013, THE PHYSICAL SCIENCE BASIS. CONTRIBUTION OF WORKING GROUP I TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 119 (T.F. Stocker et al. eds., Cambridge Univ. Press 2013), http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter01_FINAL.pdf.

11. See *Rise in Global Temps Since 1880*, CLIMATE CENT., Apr. 21, 2015, <http://www.climatecentral.org/gallery/graphics/rise-in-global-temperatures-since-1880>.

inexorable trend toward unsustainable warming is accelerating: the 20 hottest years on record have occurred since 1981, and all 10 of the hottest years ever recorded occurred in the past 12. Moreover, these temperature increases are not evenly spread around the globe: even climate scientists are stunned by the rate of the temperature increases taking place year-by-year in the Arctic,¹² and polar sea ice is quickly disappearing north of the Arctic Circle during the summer months.¹³

Our purpose is not to catalogue the havoc that these rising temperatures are causing to the global climate. One example will suffice to illustrate the connection between the environmental impacts that are right around the corner and the U.S. economy. Reports published by the National Aeronautics and Space Administration (NASA), Columbia, and Cornell scientists in 2015¹⁴ and 2016¹⁵ examined the potential for “megadroughts” (i.e., droughts of the 1930s “dust bowl” magnitude, but lasting 20–40 years) occurring in the southwest and central U.S. plains states in the decades after 2050. Noting that “[h]istorically, megadroughts were extremely rare phenomena”—occurring only once or twice over one thousand years—the authors report that “these events could become commonplace if climate change goes unabated.”¹⁶

According to the studies, “[i]n a business-as-usual world . . . rising temperatures alone are sufficient to drive megadrought risks to unprecedented levels,” creating conditions that are “far outside the contemporary experience of natural and human systems in Western North America, conditions that may present a substantial challenge to adaptation.”¹⁷ In other words, the studies warn that vast portions of the western United States may be far less agriculturally productive, and considerably less habitable, in a matter of a few decades if effective measures are not soon taken to reduce carbon emissions. It is predictions such as these that have led the 2016 report of the World Economic Forum to identify the “failure of climate change mitigation and adaptation” to be the *top risk* facing society—ahead of

weapons of mass destruction, terrorism, and the increasing scarcity of potable water.¹⁸

The Paris Agreement aims to mitigate such risks by holding the increase in global average temperatures to a level that “would significantly reduce the . . . impacts of climate change.”¹⁹ The target built into the Agreement in order to meet that objective is “well below 2 [degrees Celsius (°C)] above pre-industrial levels” with efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.”²⁰

The Trump Administration’s decision to pull the world’s largest economy out of the Paris Agreement casts a pall over the prospects for achieving the goals of that landmark accord, since doing so would require mobilization—at every level of government and by every sector of society—on a scale not seen since World War II. According to a report by the Presidential Climate Action Project of the Obama Administration:

To have a good chance (not a guarantee) of avoiding temperatures above [2°C], atmospheric concentrations of carbon dioxide [CO₂] would need to peak below about 400 to 450 [parts per million (ppm)] and stabilize in the long-term at around today’s levels. . . . In order to stabilize CO₂ concentrations at about 450 ppm by 2050, global emissions would have to decline by about 60% by 2050. Industrialized countries['] greenhouse gas emissions would have to decline by about 80% by 2050.²¹

Thus, if the long-term goals of the Paris Agreement are to be met, the United States would have to virtually decarbonize its economy in a matter of decades.

Now that the federal government has dropped out of the decarbonization effort, the question is whether the U.S. business sector—in the absence of any national regulatory mandate—will step in to assume a leading role in achieving the drastic emissions reductions that the scientific community reports as being necessary. As discussed below, the reasons it should do so are grounded in both fundamental legal principles and good business sense.

II. Under Principles of Corporate Law, Business Leaders Have the Flexibility to Address the Threat Posed by Climate Change

Directors and officers—in both publicly traded and private corporations—have the duty to provide “good and

12. Jason Samenow, “Beyond the Extreme”: Scientists Marvel at “Increasingly Non-Natural” Arctic Warmth, WASH. POST, Feb. 1, 2017, https://www.washingtonpost.com/news/capital-weather-gang/wp/2017/02/01/beyond-the-extreme-scientists-marvel-at-increasingly-non-natural-arctic-warmth/?utm_term=.de7634f4f0d9.

13. As a result of this jaw-dropping temperature increase, thawing tundra is not only releasing enormous amounts of methane—a potent greenhouse gas—into the atmosphere; it is also damaging roads, pipelines, sewers, and other infrastructure. National Snow and Ice Data Center, *Arctic Sea Ice News & Analysis*, <http://nsidc.org/arcticseaicenews/> (last visited Mar. 12, 2018); Maria-José Viñas, *Sea Ice Extent Sinks to Record Lows at Both Poles*, NAT’L AERONAUTICS & SPACE ADMIN., Mar. 22, 2017, <https://www.nasa.gov/feature/goddard/2017/sea-ice-extent-sinks-to-record-lows-at-both-poles>.

14. Benjamin I. Cook et al., *Unprecedented 21st Century Drought Risk in the American Southwest and Central Plains*, 1 SCI. ADVANCES (2015), <http://advances.sciencemag.org/content/1/1/e1400082.full>.

15. Toby R. Ault et al., *Relative Impacts of Mitigation, Temperature, and Precipitation on 21st-Century Megadrought Risk in the American Southwest*, 2 SCI. ADVANCES (2016), <http://advances.sciencemag.org/content/2/10/e1600873.full>.

16. *Id.*

17. *Id.*; Cook et al., *supra* note 14.

18. World Economic Forum, *Part 1—Global Risks 2016*, <http://reports.weforum.org/global-risks-2016/part-1-title-tba/> (last visited Mar. 12, 2018).

19. Paris Agreement, Dec. 12, 2015, art. 2, §1(a), http://unfccc.int/files/home/application/pdf/paris_agreement.pdf.

20. *Id.* The NASA study indicates that the risks of a megadrought occurring in the western United States drop sharply—to a range from 30%–60% in a 2°C warming scenario. See, e.g., Dan Zukowski, *NASA: Megadrought Lasting Decades Is 99% Certain in American Southwest*, ECOWATCH, Oct. 6, 2016, <https://www.ecowatch.com/megadroughts-2031955357.html>.

21. SUSAN JOY HASSOL, PRESIDENTIAL CLIMATE ACTION PROJECT, QUESTIONS AND ANSWERS: EMISSIONS REDUCTIONS NEEDED TO STABILIZE CLIMATE 2, 4, <https://www.climatecommunication.org/wp-content/uploads/2011/08/presidentialaction.pdf>.

prudent management” to the companies they serve,²² and must discharge those duties with the care that an ordinarily prudent person in a like position would bring to bear under similar circumstances.²³ However, the courts—mindful of the chilling effect that ordinary negligence principles would have on the willingness of competent managers to serve in leadership positions—have afforded corporate leaders a substantial measure of protection under the “business judgment rule.”²⁴ The business judgment rule creates a “presumption that in making a business decision the directors of a corporation acted on an informed basis, in good faith and in the honest belief that the action taken was in the best interests of the company.”²⁵

Thus, the question for purposes of liability under the business judgment rule is not one of ordinary negligence, but whether the action at issue was taken in good faith and “*whether directors have informed themselves prior to making a business decision, of all material information reasonably available to them.*”²⁶ The presumption can be overcome by a showing that the corporate leader was engaged in self-dealing or grossly negligent in failing to take into account readily available material information.²⁷

Accordingly, the business judgment rule is sufficiently robust to protect a good-faith determination either to *forego* any program to reduce greenhouse gas emissions in advance of any regulatory requirement to do so,²⁸ or to *take* aggressive action to mitigate and adapt to climate change, and expend corporate resources in doing so.²⁹ But such a decision should be grounded not on ignorance or political whim, but on readily available information concerning material climate risks relevant to the business of the company.

In line with these principles, the leaders of many of the nation’s largest companies have inquired into how climate change would affect their particular businesses and operations—and those inquiries have sparked initiatives aimed at addressing the risks and exploiting the opportunities that came to light as a result of their due diligence.

III. Corporate America Has Made Real Progress on Climate Change

Hundreds of major U.S. corporations have made great strides in reducing their greenhouse gas emissions by becoming more energy-efficient and tapping into renewable sources of energy. Certain major corporations have even banded together to seek strong federal action to tackle the problem of climate change. As long as 10 years ago, a group of the country’s largest companies got together with environmental groups to form the United States Climate Action Partnership (USCAP), and urged the U.S. Congress (unsuccessfully) to “establish a price signal for carbon.”³⁰ More recently, a coalition called the Climate Leadership Council was formed to advocate for a “consensus climate solution that bridges partisan divides,” which would consist of a “gradually rising” carbon tax, with all of the revenue generated by the tax returned to American citizens in the form of “dividend payments.”³¹ The sponsors of this recent proposal include JPMorgan Chase, BP, ExxonMobil, Johnson & Johnson, General Motors, Shell, and Unilever, among other major banks and corporations.

Corporate action on climate change has ramped up sharply in recent years, as the magnitude of the problem has come into focus. CDP, an organization that serves as a clearinghouse for corporate climate information, indicates that in 2015, almost 90% of the more than 5,500 reporting companies had activities underway to lower their carbon footprints.³² Likewise, the climate advocacy group Ceres reports that 60% of the nation’s top 100 companies had set greenhouse gas emissions reduction targets, renewable energy commitments, or both, as of 2013.³³

Increasingly, these goals are being keyed to science-based targets. More than 300 companies worldwide have commitments to achieve reductions at a rate consistent with the pace recommended by climate scientists to limit the worst impacts of climate change, and to seek to achieve those targets over the long term.³⁴ An initiative by CDP, the United Nations Global Compact, the World Resources

22. See *Alpert v. 28 Williams St. Corp.*, 63 N.Y.2d 557, 569 (N.Y. 1984).

23. See MODEL BUS. CORP. ACT §§8.30, 8.42 (2017); see also N.Y. BUS. CORP. LAW §717 (2018).

24. Many states have enacted additional statutory safeguards exculpating directors from liability. Contractual indemnification and insurance may also be available.

25. *Aronson v. Lewis*, 473 A.2d 805, 812 (Del. 1984).

26. *Smith v. Van Gorkom*, 488 A.2d 858, 872 (Del. 1985) (quoting *Aronson*, 473 A.2d at 812).

27. *Id.* at 873.

28. This conclusion may run counter to the more extreme interpretation of “shareholder primacy” principles, which has led some corporate leaders to focus single-mindedly on quarterly profits, notwithstanding any long-term problems that may affect later years. However, the profit maximization theory, as accepted in some quarters as it may be, does not necessarily reflect the law. Although the courts frequently pay lip service to shareholder primacy, they have not actually held corporate officials liable for failing to maximize short-term profits. This is especially so where the action at issue is in the strategic interest of the corporation over the long run. See LYNN A. STOUT, CORNELL LAW FACULTY PUBLICATION NO. 771, THE SHAREHOLDER VALUE MYTH (2013), available at <http://scholarship.law.cornell.edu/facpub/771/>.

29. *Id.* at 4 n.18.

30. UNITED STATES CLIMATE ACTION PARTNERSHIP, A CALL FOR ACTION 3 (2007), available at <http://www.merid.org/-/media/Files/Projects/USCAP/USCAP-A-Call-for-Action>. When this “call to action” deflated with the defeat of the 2009 Waxman-Markey climate change bill, the USCAP group went dormant.

31. Climate Leadership Council, *Founding Statement*, <https://www.clcouncil.org/founding-statement/> (last visited Mar. 12, 2018).

32. CDP collects annual climate-related data on behalf of more than 800 member investors with more than \$100 trillion in assets. See, e.g., CDP, CDP GLOBAL CLIMATE CHANGE REPORT 2015 (2015), http://www.marriott.com/MarriottInternational/CorporateResponsability/Performance_New_2016/SPG_PDFs/CDP_SP_500_Climate_Change_Report_2015.pdf.

33. CERES, POWER FORWARD 2.0: HOW AMERICAN COMPANIES ARE SETTING CLEAN ENERGY TARGETS AND CAPTURING GREATER BUSINESS VALUE 9 (2014), available at <https://www.ceres.org/resources/reports/power-forward-20>.

34. Science Based Targets, *Companies Taking Action*, <http://sciencebasedtargets.org/companies-taking-action/> (last visited Mar. 22, 2018); Science Based Targets, *Methods*, <http://sciencebasedtargets.org/methods/> (last visited Mar. 22, 2018).

Institute (WRI), and the World Wide Fund for Nature provides guidance on how to set such goals.³⁵

Moreover, companies are beginning to share information on their efforts to reduce greenhouse gas emissions. A framework for such collaboration has been created by the Low Carbon Technology Partnerships initiative of the World Business Council for Sustainable Development and We Mean Business. More than 700 companies have signed on to this “platform for private and public stakeholders to discuss solutions to accelerate low-carbon technology development, and scale up the deployment of business solutions, to a level and speed that are consistent with limiting global warming to below 2°C.”³⁶

The progress that has been made by the private sector, particularly in the past few years, could be characterized as impressive if it had come close to putting the United States on track to achieve the reductions needed to avoid potentially catastrophic environmental damage. Unfortunately, that is far from the case: as things now stand, carbon emissions continue to grow worldwide and there is little prospect for achieving the long-term objective set by the Paris Agreement. In a recent report, BP indicated that it projects oil and gas to supply approximately 54% of the world’s energy needs as of 2035³⁷; ExxonMobil is even more bullish, predicting the oil and gas share of the global energy mix will be a startling 57% in 2040.³⁸ Such projections of future fossil fuel use hardly square with the 80% reduction in carbon emissions needed to meet the “well below 2 degrees” goal of the Paris Agreement.³⁹

IV. Why Corporations Should Squarely Address the Risks and Opportunities Presented by Climate Change

Reason No. 1: *Business will not prosper in a dystopian world.*

The business sector, along with all other sectors of society, will suffer the consequences of the chaotic conditions that are predicted if climate change goes unchecked. Heat waves, droughts, rising sea levels, and floods occasioned

by more frequent and severe storms will disrupt corporate facilities, operations, supply chains, raw materials, and natural resources—leading to significant economic losses. At the same time, the social conflict that would ensue from chaotic climate events in the coming decades has the potential to upend the orderly society needed for the economy to prosper.⁴⁰

Business requires socioeconomic predictability to operate effectively and profitably, and that stability would be destroyed if the climate were to spin out of control. It is for this reason that a report of the task force on climate disclosures organized by the G-7 Financial Stability Board characterizes the “catastrophic economic and social consequences” of climate change as “[o]ne of the most significant, and perhaps most misunderstood, risks that organizations face today.”⁴¹ Since continued economic prosperity depends on some modicum of climate stability, the business sector has a profound interest in keeping the rise in temperatures to a minimum over the coming years.

The predicted impacts of climate change pose a clear and present danger not only to the economy at large, but also to the assets, operations, work force stability and supply, and business models of many individual companies. Potential physical risks include those that would be immediate and catastrophic, such as wildfires and floods caused by coastal storms.⁴² The havoc wreaked by Hurricane Maria on the \$15 billion pharmaceutical industry in Puerto Rico well illustrates the extent of the risks posed by increasingly violent storms on coastal facilities and the workers that operate them.⁴³

The effects of climate change will also emerge gradually, as changing conditions reduce raw material supplies or a company’s access to water resources. At the same time, evolving regulations may cause fuel prices to spike or require stringent emission controls, thereby increasing the cost of operations.⁴⁴ For some corporations, the risks posed by climate change either are or soon will have to be addressed because they are “material” to the corporation’s

35. See WRI, *Science Based Targets Initiative*, <http://www.wri.org/our-work/project/science-based-targets-initiative> (last visited Mar. 12, 2018).

36. See Kate Sharma, *Industry Takes Lead Role in Creating Low-Carbon Economy*, GLOBAL CAUSE, Jan. 2017, <http://www.globalcause.co.uk/climate-change/industry-takes-lead-role-in-creating-low-carbon-economy>. See also We Mean Business, *About*, <https://www.wemeanbusinesscoalition.org/about/> (last visited Mar. 12, 2018).

37. See BP, ANNUAL REPORT AND FORM 20-F 2015, at 11 (2016) (“Over the next few decades, we think oil and natural gas are likely to continue to play a significant part in meeting demand for energy. They currently account for around 56% of total energy consumption, and we believe they will decrease to about 54% in 2035.”), <https://www.bp.com/content/dam/bp/pdf/investors/bp-annual-report-and-form-20f-2015.pdf>.

38. See EXXONMOBIL, *THE OUTLOOK FOR ENERGY: A VIEW TO 2040*. See ExxonMobil, *Explore the Outlook for Energy: A View to 2040*, <http://corporate.exxonmobil.com/en/energy/energy-outlook/highlights/> (last visited Mar. 12, 2018).

39. See WORLD BANK, *TURN DOWN THE HEAT: WHY A 4°C WARMER WORLD MUST BE AVOIDED* 59 (2012), <http://documents.worldbank.org/curated/en/865571468149107611/pdf/NonAsciiFileName0.pdf>.

40. See TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES, RECOMMENDATIONS OF THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES 14 (2016), <https://www.fsb-tcfd.org/wp-content/uploads/2016/12/TCFD-Recommendations-Report-A4-14-Dec-2016.pdf>.

41. *Id.* at ii.

42. The insurance industry has suffered significant losses in recent years due to the uptick in the frequency and severity of storms, while losses from dry-season forest fires occurring throughout the western parts of the country have been immense. And such economic impacts will only escalate as the economy grapples not just with storm damage and fires, but also with water shortages, insect infestation, spreading disease vectors, droughts, and sea-level rise. See, e.g., Everything Connects, *Global Warming Effects*, <http://www.everythingconnects.org/global-warming-effects.html> (last visited Mar. 12, 2018).

43. See, e.g., Nathan Bomey, *Hurricane Maria Halts Crucial Drug Manufacturing in Puerto Rico, May Spur Shortages*, USA TODAY, Sept. 22, 2017, <https://www.usatoday.com/story/money/2017/09/22/hurricane-maria-pharmaceutical-industry-puerto-rico/692752001/>.

44. Even now, the regulatory landscape on climate change is becoming increasingly complex and unpredictable as state and local governments step in to fill the void left by the federal government. See, e.g., Black & Veatch, *Amid Changes in the Federal Regulatory Landscape, States Take the Lead*, <https://www.bv.com/insights/expert-perspectives/amid-changes-federal-regulatory-landscape-states-take-lead> (last visited Mar. 12, 2018).

financial performance and will need to be disclosed under the securities laws.⁴⁵ For others, such risks will merit action under principles of prudent business management.

Reason No. 2: *Climate-smart companies can prosper in the coming decades.*

A market shift of potentially unprecedented proportions is shaping up for the 21st century economy, due to a multiplicity of environmental, regulatory, and economic drivers associated with climate change. But sophisticated companies know how to respond to a market shift, even one as dramatic as the climate-related transformation that is now just beginning. With proper identification of the climate issues affecting a particular company's business, strategies can be put into place to minimize the risks and adapt to the new business conditions that are emerging.

For example, companies with coastal facilities can take steps to harden their infrastructure; those with vulnerable raw materials supplies can diversify geographically; those with energy-intensive operations can be made more efficient; and those that rely on vulnerable power grids can develop alternative or supplemental sources of distributed generation. Equally important, company leaders can assess whether *opportunities* can be found in addressing climate-related problems that would improve their competitive position, branding, or reputation with consumers and government regulators. They can also gain an edge in the capital market, where, as discussed below, investors and banks are increasingly eager to support sustainability and resiliency initiatives.

Reason No. 3: *Investors are demanding corporate action and responsibility on climate.*

Whether and how a company adapts its business to the risks and opportunities of climate change will affect its ability to attract capital. Investor coalitions representing many trillions of dollars in assets have launched campaigns to spur responsible climate action by the corporations they finance. To give one example, the group Ceres⁴⁶ has organized the Investor Network on Climate Risk (INCR), which consists of more than 130 institutional investors holding more than \$17 trillion in assets.⁴⁷ Among other

things, INCR has filed hundreds of shareholder resolutions on climate change over the past several years, and negotiated withdrawal agreements in which the target companies have committed to disclose and reduce greenhouse gas emissions, as well as to implement energy efficiency and renewable energy programs.⁴⁸ Major lenders such as JPMorgan Chase, Citibank, and Bank of America are also looking increasingly into the climate policies of their customers in making investment and loan decisions.⁴⁹

Reason No. 4: *Climate mitigation can save money and provide energy stability.*

Greenhouse gas emissions are generated in large measure from the burning of fossil fuel for energy and transportation. Since fuel is a significant business expense, building and operational changes that improve energy efficiency often benefit a company's bottom line. Moreover, investments in renewable energy may prove financially beneficial over the long term, particularly in light of the potential for significant public incentives that are available to subsidize such investments.

Further, volatility in power costs and availability can be expected to increase as a result of the direct impacts (e.g., storm-related fuel shortages) and indirect (i.e., regulatory) impacts of climate change. Companies can minimize such uncertainties through renewable energy investments involving long-term power purchase agreements (PPAs) that lock in energy prices for decades. Recognizing the benefits of such predictability, major companies like Alphabet⁵⁰ and Apple⁵¹ have entered into PPAs for wind and solar assets, thereby gaining access to the renewable energy market over the long term.

45. Commission Guidance Regarding Disclosure Related to Climate Change; Final Rule, 75 Fed. Reg. 6290, 6291 (Feb. 8, 2010) (codified at 17 C.F.R. pts. 211, 231, and 241), available at <https://www.sec.gov/rules/interp/2010/33-9106fr.pdf>.

46. Ceres counts more than 1,200 companies as signatories to its Climate Declaration, "a call to action from leading American businesses, urging the public, policymakers, and business leaders to seize the economic opportunity in tackling climate change." See Ceres, *Oregon Business Climate Declaration FAQs*, <https://www.ceres.org/climate-declaration/oregon/faqs> (last visited Mar. 22, 2018); See also The Investor Agenda, *Home Page* (identifying numerous investor initiatives), <https://theinvestoragenda.org/> (last visited Mar. 12, 2018).

47. INCR counts among its members unions, academic institutions, asset management firms, asset managers, pension funds, and private equity funds. A full list is available at Ceres, *Ceres Investor Network on Climate Risk and Sustainability*, <https://www.ceres.org/networks/ceres-investor-network> (last visited Mar. 12, 2018). See also Press Release, CDP, Over 280 Global Investors

(Managing More Than \$17 Trillion in Assets) Urge G7 to Stand by Paris Agreement and Drive Its Swift Implementation (May 22, 2017), <https://www.cdp.net/en/articles/media/press-release-more-than-200-global-investors-managing-over-15-trillion-in-assets-urge-g7-leaders-to-stand-by-paris-agreement-and-drive-its-swift-implementation>.

48. Ceres maintains a list of shareholder resolutions filed by INCR members, which is available at <https://www.ceres.org/resources/tools/climate-and-sustainability-shareholder-resolutions-database>.

49. For example, in 2008, Citi, JPMorgan Chase, and Morgan Stanley released the Carbon Principles, whereby they pledged to consider greenhouse gas emissions, as well as the potential effect of current and future climate-related regulatory policies when evaluating the financing of fossil fuel generation in the United States. After their release, three more banks signed on—Wells Fargo, Bank of America, and Credit Suisse. See, e.g., Press Release, Morgan Stanley, Leading Wall Street Banks Establish the Carbon Principles (Feb. 4, 2008), https://www.morganstanley.com/press-releases/leading-wall-street-banks-establish-the-carbon-principles_6017.

50. See, e.g., *Alphabet, AKA Google Will Buy 842 MW of Wind Power, Solar Energy, Across the World*, REVE, Dec. 7, 2015, <https://www.evwind.es/2015/12/07/alphabet-aka-google-will-buy-842-mw-of-wind-power-solar-energy-across-the-world/54875>.

51. See, e.g., Lucas Mearian, *Apple's \$850M Solar Plant Rockets It to First Place Among U.S. Corporations*, COMPUTERWORLD, Feb. 12, 2015, <https://www.computerworld.com/article/2882762/apples-850m-solar-plant-rockets-it-to-first-place-among-us-corporations.html>.

V. The Path Forward for Corporate America

As the above discussion makes clear, the protections afforded by the business judgment rule afford corporate leaders wide latitude in setting their course on issues of strategic planning such as climate change. However, such discretion is not without limit, and may not be so broad as to allow looming risks on the scale posed by climate change to be ignored. Moreover, even in the absence of any legal compulsion, it would make good business sense for many companies to develop a strategy to address such risks, and cultivate any opportunities that may stem from climate change.

Whether such issues merit C-suite attention turns on the facts and circumstances unique to each business. However, we have come to the point where *every* company should, at the very least, preliminarily assess the degree of risk it faces from the changing climate. Such an initial assessment should account for not only the direct, but also the indirect physical and regulatory risks that a company may have to deal with in the coming years.

If as a result of an initial assessment company leaders determine that a detailed climate planning effort is called for, a considerably more complex and methodical assessment—often with the assistance of qualified financial, technical, and legal advisors—should follow. Although the relevant issues and opportunities would differ from one company to another, some of the issues that commonly would be addressed are discussed below.

A. Transactional Due Diligence

Environmental due diligence has become a commonplace aspect of corporate transactions. To date, such investigations have focused primarily on the potential risks and liabilities posed by hazardous wastes that may have been generated or disposed of by the target company or its predecessors, rather than those associated with climate change. But 21st-century environmental concerns will be increasingly dominated by climate change, and the scope of environmental due diligence should expand accordingly. All of the topics relevant to climate planning—such as facility integrity, operational resiliency, fuel costs, emissions-related liabilities, supply chain risks, and business model concerns—should be incorporated into the scope of the investigation.

A task force organized by the Financial Stability Board has developed a detailed protocol for companies to follow in disclosing the financial risks that climate change poses to them, and reviewing that protocol can assist in identifying the sorts of issues to be examined.⁵² In fact, both the Sustainability Accounting Standards Board and the Climate

Disclosure Standards Board, two nonprofit organizations, have developed complementary guidelines about climate control and, specifically, certain material sustainability issues and accounting considerations that assist investors.⁵³ In addition, the American Society for Testing and Materials (ASTM) has developed a protocol for the disclosure of climate-related financial risks, which could prove helpful in organizing due diligence investigations.⁵⁴

B. Emissions Quantification and Reduction

As climate change kicks in, some form of a “price on carbon” is likely to be put into place in jurisdictions around the globe. Accordingly, companies should consider greenhouse gas emissions to be a future liability, and any reduction in such emissions to be an asset. They should understand—and quantify—their emissions profile, and create a plan for how future reductions could be most efficiently accomplished. Moreover, a system should be put into place for the quantification, documentation, and recording of any permanent emissions reduction that could qualify for credit in an existing or future regulatory regime. The Climate Registry provides a good protocol and platform for such quantification and registration.⁵⁵

C. Energy Efficiency/Distributed Energy and Supply Chain Management

Because the combustion of fossil fuels is likely to become increasingly expensive, companies would be well-served by developing comprehensive energy-efficiency plans that reduce the amount of fuel and power needed for operations over time. Initiatives could be accomplished in phases, with those projects providing the most immediate payback being implemented in the first instance, and others proceeding thereafter. Planning should include the consideration of distributed energy sources where appropriate, to provide the company with a more resilient power supply in the face of coming disruptions. Moreover, planning should not be limited to energy-efficiency improvements within a company’s facilities, but should also extend to supply chain management improvements, accounting for, and minimizing, the energy costs of transportation.

D. Asset and Resource Security

Sophisticated companies are well-versed in risk management. But companies should now assess whether and how to expand the scope of their existing risk manage-

52. TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES, FINAL REPORT: RECOMMENDATIONS OF THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (2017), <https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf>.

53. See Climate Disclosure Standards Board, *The Sustainability Accounting Standards Board (SASB)*, <https://www.cdsb.net/sustainability-accounting-standards-board-sasb> (last visited Mar. 12, 2018). See also Sustainability Accounting Standards Board, *Home Page*, <https://www.sasb.org/> (last visited Mar. 12, 2018).

54. See ASTM E 2718-10, Standard Guide for Financial Disclosures Attributed to Climate Change.

55. THE CLIMATE REGISTRY, <https://www.theclimateregistry.org/> (last visited Mar. 20, 2018).

ment programs to address relevant climate risks. Thus, companies with facilities and infrastructure in low-lying coastal areas would be well-advised to work with engineers to protect those assets from the flooding associated with unusually severe coastal storms. Experts should be consulted to determine whether such facilities are sufficiently insured against storm-related damage, to the extent such insurance is economically available. Assessment of risks posed to other company assets and resources from heat waves, drought, blight, rising sea levels, thawing permafrost, ocean acidification, or disease vectors might also be performed. Likewise, experts might assist the company in examining risks posed to its materials supply chain, and in developing strategies (such as arrangements with geographically diverse suppliers) that may help mitigate climate-related disruptions.

Companies that identify significant climate risks as a result of such planning should balance concerns regarding the short-term effects of expenditures needed to address them against the impacts that could result from inaction. Any such cost-benefit analysis should account for the potential severity of the climate-related risks over the long term.

E. Regulatory Involvement

Companies should anticipate that the regulatory environment with respect to climate change will be exceedingly dynamic. Accordingly, they should keep a watchful eye on legal developments on the topic in each of the jurisdictions where they operate. Those companies that may be materially affected by impending regulations should consider enrolling as members in trade or other groups focused on climate change, not only to gain access to timely information, but also to have a seat at the table in shaping climate regulations as they evolve.

VI. Conclusion

The federal government is turning a deaf ear to the warning that a few short years remain to get society on an orderly glide path to a predictable climate. Thus, the task is falling to business and responsible leaders in other levels of government to address and mitigate the risks of climate change. Under such circumstances, a strong social, political, and economic case can be made for collective corporate action on climate change in the absence of any regulatory mandate, at least as a stopgap measure. Likewise, a strong business case can be made for climate action on the company level, in accordance with the business judgment rule and prudent corporate management.

But there is a limit to how far corporate leaders will go with voluntary climate mitigation programs, because they will not put their companies at a significant competitive disadvantage through individual mitigation efforts. Thus, it is highly unlikely that the steep carbon reductions scientists believe are needed over the coming decades can be achieved without governmental intervention on the federal level.⁵⁶

It can only be hoped that the good work of corporate America—and other levels of government—will be enough to maintain progress in reducing greenhouse gas emissions over the next few years—thereby buying some time for the federal government to reconsider its failure to rise to the climate challenge. In the meanwhile, corporations that understand the risk and take all reasonable steps to tackle the problem can protect themselves, claim new opportunities, and drive the statutory and regulatory schemes that must ultimately arise.

56. See, e.g., Deep Decarbonization Pathways Project, *Home Page*, <http://deep-decarbonization.org/> (last visited Mar. 12, 2018).