The Road to Paris Runs Through Delaware: Climate Litigation and Directors’ Duties

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THE ROAD TO PARIS RUNS THROUGH DELAWARE: CLIMATE LITIGATION AND DIRECTORS’ DUTIES

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ABSTRACT

As political and regulatory battles over climate change rage in the United States, and the Trump Administration unwinds regulation on climate change, the directors of some of the largest, fossil fuel corporations, often referred to as “carbon-majors”, are facing a barrage of climate litigation claims. This is the second time directors of these corporations have faced litigation. The first wave of litigation against carbon majors failed for a number of reasons, including judicial reluctance to engage with the complex issue of climate change. However, climate litigation is evolving. In this second wave of litigation judges have started to engage more directly with new scientific processes that link specific industry polluters to global climate impacts. Litigants are also becoming more creative, attempting to avoid federal displacement arguments encountered in the first wave by focusing on state-based common law and statutory claims. The number and scope of claims has also increased, with litigants moving beyond tort-based claims to employ diverse causes of action, including corporate law. This second wave of litigation will have two implications for corporate law fiduciary duties. First, the litigation highlights the bidirectional nature of climate impacts and risks. Corporations contribute emissions to the atmosphere which increase the severity of climate-related impacts. Those impacts, in turn, pose significant risks to corporations themselves. Second, the litigation elevates the risk profile of climate change from an ethical concern to a significant financial risk that directors are legally obligated to consider in order to comply with their fiduciary duties under corporate law. This broad but sudden shift in litigation trends changes the risk equation for directors on climate change.

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INTRODUCTION

Climate change has become the defining issue of this generation. Scientific assessments have become more and more definitive regarding anthropogenic climate change and the severity of its impacts.\(^1\) The window

\(^1\) In 2007, the Intergovernmental Panel on Climate Change (or IPCC) concluded with very high confidence (a 9 out of 10 likelihood) that the global average net effect of human activity since 1750 has been one of warming. Intergovernmental Panel on Climate Change, Climate Change 2007: Synthesis Report 37 (2008), http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf (last visited Jan 10, 2019). In 2014, the IPCC reported that concentrations of atmospheric carbon dioxide, methane and nitrous oxide were unprecedented in the last 800,000 years. It also noted that human influence on the climate was ‘unequivocal’, and that continuing to emit greenhouse gases would lead to further warming which would have ‘severe, pervasive and irreversible’ impacts on ecosystems and people, Intergovernmental Panel on Climate Change, Climate Change 2014: Synthesis
to avoid runaway climate change is closing quickly.\(^2\) In 2015, almost 200 countries made commitments under the Paris Agreement in relation to climate change.\(^3\)

The United States was a largely progressive actor in the Paris Agreement negotiations.\(^4\) The subsequent change in administrations has reversed the course of the United States in relation to climate change, with President Trump submitting a notice to withdraw the United States from the Paris Agreement and unwinding domestic regulation and policies on climate change.\(^5\) Perhaps due to this regulatory void, the battle around climate change has shifted to the courts, and this shift has important implications for

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\(^2\) Intergovernmental Panel on Climate Change, 1.5°C Special Report – Summary for Policymakers (2018), https://www.ipcc.ch/sr15 (last visited Jan 10, 2019) (stating that in order to have a reasonable chance of not exceeding a 1.5°C temperature increase, emissions must decrease by 45% from 2010 levels by 2030).

\(^3\) UNFCCC, The Paris Agreement, FCCC/CP/2015/L.9. Parties agreed to keep long-term temperature rise to “well below” 2°C compared to pre-industrial averages, with an aspirational goal to limit increases in temperature to 1.5°C, Article 4.

\(^4\) The United States formed part of the high ambition coalition which pushed for including the 1.5°C aspirational temperature goal, Karl Mathieson and Fiona Harvey, Climate coalition breaks cover in Paris to push for binding and ambitious deal, THE GUARDIAN, Dec 8, 2015.

\(^5\) Wold notes that even though the Obama Administration demonstrated some progressive action on climate change, the issue was not pursued with sufficient urgency and what action was taken was done primarily through executive action which is vulnerable to changing administrations, Chris Wold, Climate Change, Presidential Power, and Leadership: “We Can’t Wait” 45 CASE W. RES. J. INT’L L. 303, 321 (2012); the current administration has been undoing previous regulatory progress on climate change, see Juliet Eilperin, Trump administration proposes rule to relax carbon limits on power plants, WASHINGTON POST, Aug 21, 2017; Valerie Volcovici, U.S. submits formal notice of withdrawal from Paris climate pact, REUTERS, Aug 4, 2017. The Trump Administration has consistently questioned the legitimacy of climate science, Edward Wong, Trump Has Called Climate Change a Chinese Hoax. Beijing Says it is Anything But, N.Y. TIMES, Nov 18, 2016. More recently President Trump has questioned climate science and the anthropogenic nature of climate change, Emily Holden, It’ll change back: Trump says climate change not a hoax, but denies lasting impact, THE GUARDIAN Oct. 15, 2018; David M. Uhlmann, The Trump Administration’s Orwellian SAFE Vehicles Rule, AMERICAN CONSTITUTION SOCIETY, Oct 30, 2018, see also Oliver Milman, “It’s a ghost page”: EPA site’s climate change section may be gone for good, THE GUARDIAN, Nov 1, 2018.
directors of fossil fuel intensive (or carbon-major) corporations.6

Carbon-major corporations have faced a deluge of claims in recent years. Cities and municipalities from around the United States, including New York City,7 Oakland and San Francisco,8 San Mateo, Marin County, City of Imperial Beach, County of Santa Cruz, City of Santa Cruz and the City of Richmond in California,9 King City in Washington,10 the State of Rhode Island,11 the city and Mayor of Baltimore,12 as well as crab fishermen in California and Oregon,13 have all initiated claims against carbon-major corporations. In addition to nuisance-based claims, corporate law fiduciary duties have also been in play, with an initial decision holding that directors of ExxonMobil should have disclosed relevant information on climate risk to shareholders.14 Together these new cases constitute a second wave of corporate climate litigation.15

This second wave of litigation highlights a broader set of risks that face carbon-major corporations. New scientific processes are able to quantify the historic proportion of climate impacts and damages carbon-

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6 This is part of a global shift in climate litigation trends with a number of suits being launched, in particular against Governments by their citizens in Europe, the United States and Pakistan, see The Urgenda Climate Case Against the Dutch Government, URGENDA https://www.urgenda.nl/en/themas/climate-case (last visited Oct 9, 2018); Juliana et al. v United States of America et al., 217 F. Supp. 3d 1224 (D. Or. 2016); Ashgar Leghari v Federation of Pakistan, (Lahore High Court P. No. 25501/2015).
7 No. C17-06011 WHA and No C17-06012 WHA respectively.
8 No. 17-cv-0450; 18-cv-0458; 18-cv-0732; 17-cv-4929; 17-cv-4934 and 17-cv-4935.
9 1:18-2-2-11859-0.
10 1:18-cv-00395.
11 1:18-cv-02357
12 CGC-18-571285.
14 Martin Olszynski, Sharon Mascher, & Meinhard Doelle, From Smokes to Smokestacks: Lessons from Tobacco for the Future of Climate Change Liability, 30 GEO. INT’L ENVTL. L. REV. 1, 18 (2017); Geetanjali Ganguly, Joana Setzer & Veerle Heyvaert, If At First You Don’t Succeed: Suing Corporations for Climate Change, OXFORD J. LEGAL STUD. 1 (2018) (identifying a second wave of corporate climate litigation). An earlier “first wave” of climate litigation in the US against corporations floundered for two primary reasons. First, courts viewed climate change as properly within the domain of federal regulation rather than federal common law tort. As such, they usually balked at imposing duties in federal common law tort that might conflict with existing regulations or remedies that differed from those Congress provided in a comprehensive statute such as the Clean Air Act stating that federal statutes displaced federal common law. Second, plaintiffs struggled to prove causation and judges were reluctant to engage with climate science. At the time, science could not link a specific company’s emissions to a specific plaintiff’s damages. Even if tort was appropriate, then, it was unclear that plaintiffs could prevail, and so this first wave of climate litigation failed. Electronic copy available at: https://ssrn.com/abstract=3379848
major corporations are responsible for. As the science progresses, it is likely that new and better-grounded legal challenges against carbon-majors will escalate. Judges are overcoming their prior hesitancy and engaging more directly with new scientific processes and outcomes. Litigants are also attempting to overcome federal displacement hurdles that posed a barrier to successful outcomes in the first wave of litigation, by grounding their claims more closely in state-based common law and statutory offences. Even if these renewed litigation efforts experience setbacks or are ultimately unsuccessful, corporations are likely to be the subject of increased regulatory and public scrutiny.

Public opinion on climate change is already shifting, with the majority of Americans now “alarmed” or “concerned” about the issue. Changing public opinion could shift political approaches to the issue, and incentivize regulatory action as already evidenced by the introduction of the Green New Deal, and renewed efforts by Democrats on climate legislation.

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17 In the first wave of litigation judges deferred to federal statutes such as the Clean Air Act stating they displaced federal common law actions. In the second wave, litigants are relying on state-based claims but are facing preemption hurdles. Federal preemption is contained in the supremacy clause of the U.S. Constitution art. IV § 1. The two cornerstones of preemption are the purpose of Congress is the touchstone, and a presumption against state action where Congress has already legislated in an area which is traditionally occupied by states; *Wyeth v Levine*, 555 U.S. 555, 565 (2009). The common law has established two types of federal preemption, explicit preemption where a federal statute explicitly states that state law is preempted and implicit preemption where there is no explicit preemption. Federal statutes can reserve state action and protect it from federal preemption by the use of savings clauses. The Clean Air Act has such a savings clause which has been an issue in the second wave of climate litigation, see *supra* note 15 and *infra* Part II E.


19 Abel Gustafson, Anthony Leiserowitz & Edward Maibach, *Americans are Increasingly “Alarmed” About Global Warming*, YALE PROGRAM ON CLIMATE CHANGE COMMUNICATION, Feb. 12, 2019 (noting that six in ten Americans are either alarmed or concerned about climate change, with the proportion of Americans alarmed about climate change doubling from 2013 to 2018); although almost half of Americans are unwilling to pay for climate policies, see Adam Aton, *Most Americans Want Climate Change Policies*, CLIMATEWIRE, Oct. 3, 2017 (noting that in a 2017 poll 7 out of 10 Americans believed climate change was happening but half would be unwilling to pay even $1.00 more on their electricity bills to lower emissions).

20 While light on detail at the moment, the proposal puts forward a series of actions to address both climate change and economic inequality, by decarbonizing the electricity grid, transportation systems, and industry, House of Representatives Resolution (2019).

This second wave of litigation has important implications for directors of carbon-major corporations as it highlights the risks of climate change to corporations and the financial implications of those risks. The risks of climate change have become so great that they threaten corporate profits and international fiscal stability. Directors must consider the financial implications of climate risks in order to comply with their fiduciary duties. Risks to corporations include transition and physical risks. Transition risks are those risks associated with the transition to a lower-carbon economy, such as policy or regulatory changes, as well as litigation, technology, market changes, and reputational risk. Physical risks affect operational assets and supply chains, and are driven by both slow impacts of climate change such as sea level rise, as well as extreme weather events, such as droughts, wildfires, storms and flooding. Risks specific to the energy industry include water shortages, melting permafrost affecting transportation routes, and damage to coastal energy infrastructure.

Despite these risks, directors, officers, and their legal advisors justifiably may have been and continue to be operating under the view that corporate fiduciary duties either prevent or disincentivize directors from focusing corporate attention and resources on combating climate change and assessing and addressing related risks. This is largely due to corporate

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22 Mark Carney, in his position as the Governor of the Bank of England, highlighted the potential risks of climate change to both industries and international fiscal stability. He noted that climate change could negatively affect between four to forty-three trillion dollars of global assets by the end of the century (citing The Economist Intelligence Unit, The Cost of Inaction: Recognizing the Value At Risk from Climate Change (2015) https://eiuperspectives.economist.com/sites/default/files/The%20cost%20of%20inaction_0.pdf) (last visited Jan 9 2019). His 2015 speech to insurers in Lloyds of London stated that the risks of climate change are threefold: physical risks to insured assets, liability risks from litigation, and transition risks, including financial risks from changing regulatory requirements to transition to a lower-carbon economy. He also highlighted the role of initial law suits against pension fund managers of carbon major companies in elevating long-term risks of climate change and their implications for fiduciary duties. His speech at Lloyds of London in 2015 was the precursor to the establishment of the Task Force on Climate-Related Financial Disclosures by the G-20, Nina Chestney, G20 task force issues framework for climate-related financial disclosure, REUTERS, Jun 29, 2017.


24 Infra Part IV A. Climate change impacts will be felt across economies, impacts will be differentiated across sectors, see Sarah Barker, An Introduction to directors’ duties in relation to stranded asset risks in Ben Caldecott (ed) STRANDED ASSETS AND THE ENVIRONMENT RISKS, RESILIENCE AND OPPORTUNITY (Routledge: 2018), 202. Even within the fossil fuel industry some sectors have already been affected differently, with bankruptcies seen throughout the coal industry.

Directors’ fiduciary duties are duties imposed by statute and common law on directors, and owed by directors primarily to the corporation. The shareholder wealth maximization norm is a powerful norm that has guided the interpretation of directors’ duties under corporate law for many decades. Like corporate law, it places shareholders, and their perceived need for profit maximization, at the heart of directors’ duties.

This article takes a different perspective and urges a contrary approach. Corporations will face increased legal responsibility as climate science improves, climate impacts continue and escalate in frequency and severity, corporations and the public face increased risks, and public opinion shifts. Corporate fiduciary duties and the shareholder wealth maximization norm that guides their application compel directors to identify and assess the risks of climate change to the corporation, and may even incentivize directors to address these risks if they take a long-term management approach. While short-term business perspectives may still pose barriers to progressive climate action, new research is pointing to a business case for transitioning away from fossil fuels and towards cleaner energy sources, even for the largest carbon-major corporations. When this business case is added to increased risks of climate change to corporations, fiduciary duties as interpreted under Delaware law, where most carbon-major corporations are headquartered, should spur progressive action. A climate-friendly approach should be viewed by directors not only as a response to risk, but also as part of a long-term strategy to adapt to climate impacts and ensure long-term profitability for shareholders.

Corporate action, moreover, is essential for dramatic and much needed contributions to meeting global climate goals under the Paris Agreement. As Vandenbergh and Gilligan note, private environmental governance and corporate actions can achieve major greenhouse gas emission reductions in the face of government gridlock. Corporate law can be an important tool to facilitate progressive climate action by corporations. Identifying

26 Id.
27 Michael P. Vandenbergh and Jonathan M. Gilligan, Beyond Gridlock, 40(2) COLUMBIA JOURNAL OF ENV. LAW 218, (2015) (identifying private environmental governance as actions by private organizations performed without government collaboration, delegation or outsourcing). In the existing government gridlock, they explain that while private actions are a second best option to government action, these activities are critical and could reduce emissions by roughly 1,000 million tons of CO₂ per year between 2016-2025. See also, Michael Vandenbergh, The Drivers of Corporate Climate Mitigation 29 THE ENVIRONMENTAL FORUM (2018) and Michael Vandenbergh, Private Actors: Part of the Problem, Part of the Solution, 48 ENVIRONMENTAL FORUM (2017).
28 Sarah E. Light, The Law of the Corporation and Environmental Law, 71 STANFORD LAW REV. 137 (2019) (arguing that corporate law should in fact be understood as a
corporate law as a bridge and not a barrier to ambitious corporate climate action therefore has broad relevance. This article illustrates that the road to meeting the Paris Agreement’s climate goals could in fact run through Delaware-based corporate law.

This Article is structured as follows. Part I describes why climate change poses such difficulties for corporate law, and why carbon-majors are the focus of renewed litigation efforts. Part III charts the evolving nature of climate litigation against these actors, including hurdles encountered in the tort-based first wave of climate litigation, and how the second wave of litigation is attempting to overcome these hurdles. Part IV examines new risks and responsibilities thrown up by this second wave of litigation, by providing a synthesis of fiduciary duties under Delaware law and highlighting how these developments in climate litigation may (and should) affect corporate behavior in the context of climate risk. It also examines potential barriers to climate liability. Part V charts a potential way forward for directors, highlighting the management tools and strategies that are available to directors if they are willing to take a long-term perspective.

This article eschews a comprehensive comparative survey of climate litigation around the globe, as this work has already been undertaken by other scholars; David Markell & J.B. Ruhl, An Empirical Assessment of Climate Change in the Courts: A New Jurisprudence or Business as usual?, 64 FLA. L. REV. 15 (2012); UN Environment and Sabin Center for Climate Change Law, ‘The Status of Climate Change Litigation: A Global Review’ (2017); Dena P. Adler, U.S. Climate Change Litigation in the Age of Trump: Year One, Columbia Law School Sabin Center for Climate Change Law, (February 2018); Brian J. Preston, Climate Change Litigation (Part 1), CARBON & CLIMATE L. REV. 3 (2011); Brian J. Preston, Climate Change Litigation (Part 2), CARBON & CLIMATE L. REV. 244 (2011); R. Henry Weaver & Douglas A. Kysar, Courting Disaster: Climate Change and The Adjudication of Catastrophe, 93 NOTRE DAME L. REV. 295 (2017); Michael C. Blumm & Mary Cristina Wood, No Ordinary Lawsuit: Climate Change, Due Process and The Public Trust Doctrine, 67 AM. U. L. REV. 1 (2017); HARI M. OSOSKY & JACQUELINE PEEL, CLIMATE CHANGE LITIGATION: REGULATORY PATHWAYS TO CLEANER ENERGY (James Crawford & John S. Bell ed., 2015). It focuses instead on the potential impacts of this litigation on corporations generally and on the nexus between climate risk and directors’ fiduciary duties more specifically, as this is an under researched area of law in climate litigation scholarship, Joana Setzer and Lisa C. Vanhala, Climate change litigation: A review of research on courts and litigants in climate governance, WIREs CLIMATE CHANGE 1 (2019). It is important to note that corporations themselves are not passive players in this arena and have been active in litigation efforts, acting as plaintiffs in a number of suits. It is also important to note that some corporations have been progressive and proactive in the climate change area, and so not all carbon-major corporations can be classed as “laggards.” However, this article focuses on a small subset of cases where carbon major corporations are defendants in order to assess the implications of these cases for directors’ fiduciary duties.
I. THE CHALLENGE OF CLIMATE CHANGE FOR CORPORATE LAW

Climate change poses significant issues for legal structures and governance. Climate change is highly polycentric, dynamic, uncertain, and socio-politically sensitive, and so poses challenges to legal orders which seek certainty and stability.\(^{30}\) The structure of law is subdivided into specific levels of governance and therefore is ineffective to govern a problem such as climate change, which has impacts on local, regional and international scales.\(^{31}\) Climate change has been described as a “super wicked” policy problem,\(^{32}\) as it poses challenges to legal orders that are designed to create and maintain legal stability for traditional governance regimes.\(^{33}\)

In addition, climate science is a particularly complex discipline. It involves elements of risk, probability, and therefore uncertainty. There are temporal delays between emissions and effects. And since it is impossible to run controlled experiments, the discipline is heavily dependent upon climate models.\(^{34}\) As Fisher et al. note, “The dynamic nature of climate change does not sit easily with legal orders that value stability and legal certainty.”\(^{35}\) These are difficult areas for judges to wrap their arms around and may explain previous judicial reticence in engaging with climate change and climate science in particular.

A. The failure of corporate law to address climate change

Climate change challenges legal orders, and this dynamic is further highlighted within the realm of corporate law and its application to carbon-major corporations. Corporate law is traditionally designed to focus on shareholders and profit making, with non-shareholders being relegated to the realm of environmental or some other non-corporate legal arena.\(^{36}\)


\(^{33}\) Fisher et al., supra note 30, at 176.

\(^{34}\) Id. at 179.

\(^{35}\) Id. at 181.

\(^{36}\) Shareholder primacy and contractarian theories have consistently argued that externalities are more appropriately catered for by welfare laws and environmental or other regulations outside of the realm of corporate law. They argue that corporate law should focus solely on shareholders and shareholder wealth maximization; see Milton Friedman, The Social Responsibility of Business Is to Increase Its Profits, NY TIMES (Sept 1, 1970), Armen A. Alchian and Harold Demsetz, Production, Information Costs and Economic
Environmental issues, including climate change, are viewed as beyond the responsibility and remit of corporate law. Transnational carbon-major corporations have been largely unregulated in terms of their greenhouse gas (GHG) emissions, and corporate law has been an underused tool to incentivize emissions reduction. Most carbon-major corporations approach emissions reductions as a voluntary and largely ethical initiative, and part of broader corporate social responsibility aims. Climate change is a particularly intractable problem for these types of corporations as efforts to reduce or internalize the costs of GHG emissions undermines their business models. GHG emissions are treated as a negative externality by corporate law; a cost to be pushed outside of the corporation and absorbed by society. Climate change is the “mother of all externalities” or “perhaps...
the greatest negative meta-externality ever imposed by economic systems 
on the natural world, the one that corporate law has traditionally been 
unwilling to accommodate. Corporate law has encouraged the outsourcing 
of negative externalities beyond the responsibility of the corporation, as this 
approach is more profitable. Carbon-majors are a major source of GHG 
emissions, but they have not been held legally responsible for their 
contributions to climate change.

B. Why carbon-majors?

Carbon-majors have become the focus of a new wave of climate 
litigation. There are reasons why they have attracted renewed legal 
attention. Only a small number of carbon-major corporations contribute a 
large amount of GHG emissions. The concentration of these entities into 
large, transnational groups, combined with their long history in the industry, 
make them accountable entities in terms of the quantity of their historic 
emissions. They have continued to operate around the globe largely 
unregulated in terms of their GHG emissions. Lack of regulatory oversight 
may be another reason for the recent emergence of litigation against these 
entities.

New scientific processes have clearly identified the monumental 
contributions corporate emissions have made to climate change and related 
negative impacts. These new scientific processes can identify the specific 
contributions corporations have made to climate change, making them a 
clearer target for litigation and also independent of litigation, regulatory 
attention. New scientific studies challenge the prevailing assumption that 
corporate law should not consider and address the contributions of 
corporations to climate change. The studies demonstrate that corporate 
actors are the primary cause of historic emissions, and clearly articulate 
their factual responsibility. These corporations also have high levels of 
scientific and technical expertise, and so were in a position to understand 
and act on available climate data. Instead, many of them in the United 
States, Canada, Australia and the UK sought to discredit and disparage 
scientific evidence and lobbied to prevent policies that encouraged a 
transition away from fossil fuels.

42 Rosetta Lombardo & Giovanni D’Orio, Corporate and State Social Responsibility: A Long-Term Perspective, 3 MOD. ECON. 91, 92 (2012).
44 See infra Part II B.
45 Heede, supra note 16.
46 Frumhoff et al. supra note 43. The Union of Concerned Scientists also enumerate the decades-long campaign described in internal corporate documents carried out by a
In addition, and combined with increased litigation and regulatory risks, the impacts of climate change are mounting, and the financial community is now encouraged to view climate risk in a bidirectional manner – considering both the contributions of corporations to climate impacts but also the significant impacts and risks climate change poses to their businesses. These risks are particularly acute for carbon-major corporations, and investors are becoming concerned. Carbon-majors’ deceptive approach to climate change, combined with their substantial presence in the value chain and high exposure to climate risk, makes them “prime litigation targets.”

New scientific studies, combined with the increasing risk of climate change to society and corporations, have helped to make carbon-majors the focus of climate litigation.

II. THE EVOLUTION OF CLIMATE LITIGATION

The first wave of climate litigation against carbon-major corporations faced a number of hurdles. These included problems in proving causation under tort law, how to identify an appropriate class of defendants and issues of standing, the political question doctrine, as well as the difficulty in handful of carbon-major corporations such as Chevron, BP, Shell, ConocoPhilips, ExxonMobil and Peabody Energy to deceive the American public by distorting the realities and risks of climate change, block policies designed to hasten the transition to clean energy, and carry out a coordinated campaign to spread climate misinformation in order to maintain their profitability. The Climate Deception Dossiers: Internal Fossil Fuel Memos Revealed Decades of Corporate Disinformation (2015) https://www.ucsusa.org/global-warming/fight-misinformation/climate-deception-dossiers-fossil-fuel-industry-memos (last visited March 10, 2019).

This first wave of litigation focuses on a select group of cases where carbon-major corporations stood as defendants, but it should be noted that there have been a number of pro- and anti-regulation suits in the United States as well. For example, in Massachusetts v EPA 549 US 497 (2007), the Supreme Court explicitly accepted climate science and ushered in a regulatory mandate for the EPA to regulate GHG emissions under the Clean Air Act, see Melissa Powers, Country Report: USA Climate Change in the Supreme Court 1 IUCN ACADEMY OF ENV. L J 245, 246 (2012) (noting that the outcome of the AEP case could have been influenced by the changing regulatory context of climate change under the Obama Administration).

While this article does not deal with issues of standing in depth, these did occur in the first wave of litigation. Article III of the US Constitution establishes requirements around standing, which are that the jurisdiction of federal courts is limited to cases where: (i) the plaintiff has suffered an injury in fact; (ii) that is fairly traceable to the defendant’s misconduct; and (iii) is capable of being redressed by the court. US Constitution, Article III. The Murphy Oil case is a notable example of both issues of standing but also causality in the context of suits against carbon major corporations. It is problematic due to many procedural oddities of the case, Murphy Oil, 585 F.3d 855. The plaintiffs in Murphy Oil
linking harm to a particular person or entity caused by specific emissions from one state or one company. Causation requires that plaintiffs demonstrate a causal connection between the harm suffered and the actions of the defendant. Causation remains factually difficult if not impossible to prove due to the disparate nature of GHG emissions, and so remains a challenge for litigation against corporations, even in the second wave of litigation. Emissions of GHGs from different sources mix in the atmosphere and have impacts all over the globe. As a result, this process of mixing makes attributing a particular harm to a particular emitter difficult, if not impossible. This creates significant hurdles for plaintiffs in tort-based actions, although new scientific processes are closing the causation gap. This section will focus on judicial reluctance to take on the complexity of climate science, and judicial preference to defer the issue to legislative bodies based on, among other issues, federal displacement arguments in the first wave of climate litigation. These difficulties have, in the past, created insurmountable barriers for tort-based litigation suits against corporations. This section will demonstrate how litigants are attempting to dismantle these two hurdles in the second wave of climate litigation.

sued a number of corporations, including insurance corporations, carbon major corporations, and banks for damages wrought by Hurricane Katrina. They targeted carbon major corporations due to their contributions to climate change, which they claimed led to the unprecedented strength of the storm. The plaintiffs pointed to the knowledge of carbon major corporations about climate change and their lack of action to use technology or their profits to combat it. While the district court dismissed the case for various reasons, including lack of standing, an appellate panel concluded that the plaintiffs had standing to bring claims of public and private nuisance, trespass and negligence, which all depended on a causal link between emissions and destruction of their property. The court relied on Massachusetts v EPA, which acknowledged a plausible link between man-made emissions and global warming. The Panel’s decision was, however, vacated when the Panel in the Fifth Circuit agreed to an en banc review of the decision. Although the Court agreed to hear the en banc panel, it was unable to form a quorum and thus dismissed the case and the panel’s decision remained vacated. Murphy Oil accepted, at the pleadings stage at least, a fairly traceable connection between the alleged injury in fact and the alleged conduct of the defendant for standing purposes. According to the Panel, traceability in this context did not require the demonstration of scientific certainty that the corporations’ emissions caused the precise harm suffered by the plaintiffs. Instead, the court recognized that injuries could be fairly traceable to actions that contributed to, rather than solely or materially caused, greenhouse gas emissions and global warming.

This doctrine states that the courts will only adjudicate matters of law and will refrain from adjudicating matters which are determined to be political questions which are best left to the legislature, as stipulated in the Supreme Court’s decision in Marbury v Madison 5 US 137 (1803).


52 Supra note 17.
A. Hurdles in the first wave of climate litigation

The first wave of cases against carbon-majors failed primarily due to the federal displacement doctrine – that federal legislation such as the Clean Air Act displaces federal common law. A number of courts in the United States preferred to defer the issue instead to legislative bodies. Judges were also reluctant, and/or poorly equipped, to deal with the complexities of climate science.

Two major cases in the first wave of litigation were the American Electric Power v Connecticut (AEP) and Native Village of Kivalina v ExxonMobil Corporation (Kivalina) cases. These cases illustrate judicial inadequacies when dealing with climate science, as well as a judicial reluctant to adjudicate such a systemic issue as climate change. Some of these hurdles are being challenged, although some persist, in the second wave of climate litigation.

AEP was an example of a public nuisance suit brought by eight states and New York City against six electric and utility corporations. Plaintiffs argued that the emissions of these corporations interfered with public rights and asked the court to impose declining emission caps on these entities, to force them to reduce their emissions. The Supreme Court rejected the claim on the basis that the Clean Air Act “displaced” any federal nuisance action dealing with climate change. Justice Ginsburg, writing for a unanimous Court, wrote that there was no “parallel track” for federal nuisance claims on climate change. This definitive statement by the Supreme Court effectively closed the door to future federal nuisance common law claims on climate change, even though Flynn notes that the EPA had not taken comprehensive action on climate change at the time.

54 Native Vill. of Kivalina v. ExxonMobil Corp., 663 F. Supp. 2d 863 (N.D. Cal. 2009), aff’d, 696 F.3d 849 (9th Cir. 2012).
55 American Electric Power, 546 U.S.
57 American Electric Power, 546 U.S.
58 Flynn, supra note 56, at 856; Dirisek, supra note 56, at 109.
59 Flynn, supra note 56, at 847–8 (arguing that the Clean Air Act only addresses domestic air resources whereas the impacts of climate change are more complex, exceeding impacts on air, and are also transboundary). This may point to a general reluctance by the judiciary to tackle what they considered to be a political issue.
The case also illustrates the judicial reluctance, or “skittishness,”60 of the courts in dealing with climate change disputes and climate science. Burkett notes the regressive approach of the court to acknowledging climate science, as it cited a skeptical magazine article in the same context as multiple peer reviewed articles, going on to make a “facile indictment” 61 of all living, breathing individuals as contributing to climate change. The reluctance of the judiciary to appropriately cater for climate science in this case stands in contrast to newer judicial attitudes to climate science illustrated in the second wave of climate litigation. The AEP case also revealed the concerns of the judiciary over acting as arbiters of scientific debates.62 The enormity of the issue of climate change, and its implications for industrial development may also have been decisive factors for the courts in the first wave of climate litigation. Courts have been reluctant to make definitive findings of fact about climate change and are sensitive to climate change policy being in the purview of the legislative bodies.63

In Kivalina, the Alaskan Native Village brought a suit for public nuisance against twenty-two fossil-fuel producers. The Village claimed that these corporations contributed to climate change, which led to the dramatic reduction of the Artic sea ice that had previously sheltered their homes from winter storms.64 In September 2012, the Ninth Circuit dismissed their claim, concluding that common law torts claims had been “displaced” by federal legislation.65 The court was also reluctant to determine what acceptable levels of emissions by the corporate defendants should be and who should bear the costs of those emissions.66 The decision suggests that AEP will continue to apply to all federal U.S. climate change tort claims, regardless

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61 Id.; this approach lies in stark contrast to the Massachusetts v EPA case where the Supreme Court easily accepted climate science.
62 OSOFSKY & PEEl, supra note 29, at 766.
63 Ganguly supra note 15, at 12. See also the California v Ford 3:06-cv-05755-MJJ (2007) where California lost its suit against major automobile manufacturers for impacts from climate change partly due to the Court determining it was not able to impose damages without unreasonably encroaching onto global issues; as highlighted by Weaver & Kysar supra note 29, at 325 (stating that the courts were overwhelmed by the sheer complexity and size of the climate change problem). See also James Huffman, Previously Unrecognized Rights: Climate Change Lawsuits and the Rule of Law QUILETTE (Oct 30, 2018).
64 Flynn, supra note 56, at 836; Peter Manus, Kivalina at the Supreme Court: A Lost Opportunity for Federal Common Law, 8(2) J. OF ENVTL. AND PUB. HEALTH L. 223, 225 (2014).
65 In May 2013, the Supreme Court denied their appeal petition for certiori without giving reasons, leaving the Ninth Circuit decision intact, Karine Péloffy, Kivalina v ExxonMobil A comparative case commentary, 9(1) JSDL-P-RDPDD 121 (2013) at 122.
66 Olszynski, Mascher & Doelle, supra note 15, at 19.
of the specified remedy.\footnote{Quin M. Sorenson, \textit{Native Village of Kivalina v Exxonmobil Corporation: The End of “Climate Change” Tort Litigation?} 44 Trends 1, 6 (2013).} Powers notes that the \textit{AEP} case effectively foreclosed the use of federal tort law to mitigate climate change.\footnote{Powers, \textit{supra} note 48, at 245.} Both the \textit{AEP} and the \textit{Kivalina} cases laid bare the judicial preference in U.S. courts to ensure that climate change is decided by the legislature.\footnote{Flynn, \textit{supra} note 56, at 837.} This judicial preference persists in the second wave of climate litigation, and as a result of these cases, federal common law nuisance claims on climate change against corporations still face tremendous hurdles.\footnote{A class action suit was launched by young people in the District Court of Oregon, claiming that failure by government to take action on climate change has violated their 5\textsuperscript{th} Amendment rights by denying protection provided to previous generations by favoring economic short-term interests and denying future generations of essential natural resources, including a safe climate; see \textit{Juliana et al. v United States of America et al.}, 217 F. Supp. 3d 1224 (D. Or. 2016). At the time of writing the case was proceeding, but industry intervenors had requested to be withdrawn from the case in 2017, partly due, according to Blumm and Wood, to concerns about having to respond to disclosure requests. Despite their withdrawal being granted, Blumm and Wood argue that exposure of the relationship between government and the fossil fuel industry will prove to be one of the more devastating outcomes of the case, Blumm & Wood, \textit{supra} note 24 at 28, 55. Blumm and Wood note the potential of the public trust doctrine (PTD) which has been used in this claim, as PTD would be exempted from the federal displacement doctrine which only applies to common law claims. Blumm & Wood, \textit{supra} note 24, at 28. If successful, the regulatory implications of this case could be vast, and as a result it has been called the “trial of the century.” See Peter Singer, \textit{The trial of the century, fighting for a healthier planet}, \textit{The Daily Star} (Sep 15, 2018). Chief Justice Roberts granted a temporary halt in response to a request by the federal government to stay the case, see Michael Blumm & Mary Wood \textit{These young kids want their day in court on climate change} THE CONVERSATION \url{https://theconversation.com/these-kids-and-young-adults-want-their-day-in-court-on-climate-change-105277} (last visited Oct 29, 2018), but the stay was subsequently lifted, see Oliver A. Houck, \textit{The children’s climate case: Our obligation to future generations} THE HILL \url{https://thehill.com/opinion/energy-environment/415307-the-childrens-climate-case-our-obligation-to-future-generations} (last visited Nov 6, 2018). Class action suits by young people were also launched in 2018 in Canada \textit{ENVironnement JEUnesse v Procureur Général du Canada} Demand 2018 No. 500-06, in Florida in \textit{Reynolds v Florida} 37 2018 CA 000819 and in Washington in \textit{Aji P v State of Washington} 18-2-04448-ISEA and in 2017 in Alaska in \textit{Sennok v State}, although dismissed, this case is on appeal.} Litigants in second wave of climate litigation have attempted to dismantle these hurdles, with varying levels of success. Litigants in the second wave have started to draft their claims in order to avoid the federal displacement doctrine. They have also been assisted by new scientific processes and developments which have clearly attributed the majority of historic GHG emissions to carbon-major corporations, and judges have started to engage more confidently with this new climate science.
B. New scientific processes

Recent developments in scientific processes have identified the contributions of carbon-majors to climate change, and provided an impetus to renewed climate litigation efforts. In 2013, Richard Heede published a groundbreaking quantitative analysis of historic fossil fuel and cement production records of 90 leading investor-owned, state-owned and nation-state producers of oil, natural gas, coal and cement. His study concluded that these 90 carbon-major entities were responsible for 63% of cumulative worldwide industrial emissions of carbon dioxide and methane from 1854-2010. Heede, supra note 16. Investor-owned entities contributed the majority of these emissions, 315 gigatonnes, followed closely by nation states, and state-owned fossil fuel and cement-producing entities. The twenty largest investor- and state-owned energy corporations were responsible for 29.5% of all global industrial emissions, and the ten largest investor-owned corporations alone were responsible for 15.8% of global industrial emissions through 2010.

Heede’s analysis has been revolutionary in terms of its ability to attribute a percentage of global emissions to these entities. Heede’s work has been a motivating factor in the second wave of litigation around the world against these entities, and it has been referred to in almost every new suit launched against carbon-major corporations. Heede’s research demonstrates the gap between scientific attribution and legal assignment of responsibility. The law has so far fallen behind scientific progress in the context of corporate climate emissions and therefore corporate accountability. Whether or not Heede’s factual accountability can be translated into legal accountability is unclear, particularly within tort law.

Heede’s carbon-major study has been further developed by probabilistic event attribution science, often called attribution science. See Hegerl et al., Good practice guidance paper on detection and attribution related to anthropogenic climate change. In: Meeting Report of the Intergovernmental Panel on Climate Change Expert Meeting on Detection and Attribution of Anthropogenic Climate Change’ (2010) [T. F. Stocker, et al. (eds.)]. IPCC Working Group I Technical Support Unit, University of Bern, Bern, Switzerland, 8; Nathaniel L. Bindoff & Peter A. Stott et al., Detection and Attribution of Climate Change: from Global to Regional, The Physical Science Basis. COMMITTEE ON
This discipline is developing quickly, and is able to attribute the multiplying contribution of climate change to particular extreme events, although attribution science is more confident in certain areas than others. Event attribution relies on observational records to determine changes in probability or magnitude of climate-related events, and uses model simulations to compare the manifestation of an event in a world with human-caused climate change and a world without. It does this by constructing factual and counterfactual probabilities or worlds. A factual probability is one where an event occurs in the currently observed world as it exists in the context of climate change, and a counterfactual probability occurs in a hypothetical “control” world without human influence on the climate. By comparing the real-world events to the hypothetical ones, climate scientists can predict which events were caused, at least in part, by climate change.

This new process has been applied to corporate actors as well, and has the potential to impact legal tests such as causation, and therefore is likely to inspire future litigation efforts against these actors. Fossil fuel corporations are becoming an increasing focal point of attribution efforts, building on the initial work by Heede, in relation to specific temperature increases and sea level rise. Heede’s work has been expanded by Ekwurzel et al., who recently published a paper tracing the contributions of emissions by several carbon-major corporations to the rise in global mean surface temperatures. Their paper determined that combustion of products from 90 carbon-major entities from 1880-2010 led to 0.4°C increase in global mean surface temperatures. 

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Confidence in attribution studies is strongest where there exist long historical records of observations which can be simulated adequately by climate models. These tend to be purely meteorological events which are not strongly influenced by issues such as infrastructure and population trends, or in circumstances where other factors can be carefully and reliably considered. The findings are strongest for extreme events related to aspects of temperature, such as extreme heat or cold events and heavy rainfall, and tend to be less robust for tropical cyclones, wildfires and drought, supra note 74.

Id. at 2–3.

Id. at vii. The first attribution study was published in 2004 regarding the European heatwave in 2003, and estimated that the summer was 0.5°C warmer. See Peter A. Stott, D.A. Stone & M.R. Allen, Human contribution to the European heatwave of 2003, NATURE 432, 610-614 (2004). Event attribution science has progressed tremendously since that date, with David Mitchell et al.’s study being able to now attribute a certain number of deaths during the heatwave to human induced climate change. See David Mitchell et al.,Attributing human mortality during extreme heat waves to anthropogenic climate change, 11 ENVTL. RESEARCH LETTERS 11 074006 (2016).
surface temperatures, constituting 50% of the total global increase during this time period.\textsuperscript{78} Combustion from 1980-2010 led to a 0.28°C rise, constituting 35.1% of total global mean surface temperature increase during that period.\textsuperscript{79} Their models are scalable and allow for the testing of the relative contributions of these entities, even at individual levels for the largest emitters (Chevron, ExxonMobil, Saudi Aramco and Gazprom).\textsuperscript{80} They are also able to trace increments of sea level rise to combustion of fossil fuel products from these entities, which has direct relevance to the recent cases launched in the second wave of climate litigation where government entities are claiming abatement costs for sea level rise.\textsuperscript{81}

These new studies make great headway in closing the causation gap highlighted in the first wave of climate litigation. Developments in attribution science have the potential to “change the legal landscape,” \textsuperscript{82} leading to implications for directors with legal duties to consider and avoid foreseeable harm. Improvements in attribution science are proving foreseeability, which is key to establishing a tort-based duty of care.\textsuperscript{83} These studies make the connection between corporate emissions and their harm very clear. Evidence from attribution science will catalyze future climate change litigation, and so may inform common law-based litigation on directors’ and officers’ liability.\textsuperscript{84} Indeed, despite the lack of federal legislative progress on climate change in the United States, a second wave of climate litigation against carbon-major companies has already begun in earnest. While cases in the first wave were unsuccessful, cases in the second wave are using multiple legal tools, and attempting to scale the hurdles encountered in the first wave of litigation. In addition, judges in these cases

\textsuperscript{78} B. Ekwurzel et al., The rise in global atmospheric CO2 surface temperature, and sea level from emissions traced to major carbon producers, 144 CLIMATIC CHANGE 579, 585 (2017).
\textsuperscript{79} Id.
\textsuperscript{80} Id. at 582, 586, 588. They do note three sources of uncertainty: equilibrium climate sensitivity, the short-term effects of fossil fuel aerosols and the policy relevance of different time periods of historical emissions.
\textsuperscript{81} Id. at 587–88. Ekwurzel et al. are clear that their work is not designed to assign responsibility, an issue which they reserve for societal judgment. They do acknowledge that the tools of attribution science are being applied to characterize specific damages resulting from specific players in anthropogenic climate change, and therefore societal judgments should be informed by the ongoing scientific analysis.
\textsuperscript{82} Marjanac et al., supra note 18.
\textsuperscript{83} Id.
\textsuperscript{84} Id.(noting that probabilistic evidence is already accepted in UK occupational exposure to toxic substances cases where causation has been proved when the evidence demonstrates a ‘doubling-of-the-risk’ test, that the risk was increased by a factor of 2:1 in cases such as XYZ v. Schering [2002] EWHC 1420 and Sienkiwicz v. Grief [2011] UKSC 10).
are demonstrating more skill acknowledging and managing climate science.

C. The second wave of climate litigation: Hurdling the hurdles

A number of new suits were launched in 2017 and 2018 in the United States. In this second wave, climate litigation is taking a variety of forms, including using tort law, public and private nuisance, human rights and the public trust doctrine.\textsuperscript{85} Newer cases against corporations have also employed fiduciary duty and security law disclosure requirements or statutory offences,\textsuperscript{86} highlighting a turn to corporate law in the second wave of litigation. Litigants in the second wave are also attempting to overcome the federal displacement hurdle by citing state-based claims and breaches of state legislation.

Tort-based claims are evolving, and attribution science may be influencing both their initiation and outcomes.\textsuperscript{87} Every case in the second wave of climate litigation has cited Heede’s 2013 study. In 2017, a case in Germany of \textit{RWE v Lliuya}\textsuperscript{88} found a causal and proximate relationship exists between the emissions of a German energy company, RWE, and climate damage experienced in Peru.\textsuperscript{89} The plaintiff cited Heede’s calculations that RWE was responsible for 0.47\% of all historic emissions, and therefore asked for 0.47\% of the total costs of remediation actions taken in Peru.\textsuperscript{90} On appeal the Hamm Court agreed, provisionally accepted

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\textsuperscript{85} Preston, (Part 2), supra note 29, at 4 and 258; Blumm & Wood, supra note 29.

\textsuperscript{86} For example, the Martin Act, New York General Business Law article 23-A, sections 352–353 has been relied up on by the Attorney General of New York to investigate and sue ExxonMobil. The Martin Act is a New York anti-fraud law which provides the Attorney General with expansive powers of investigation into securities fraud.

\textsuperscript{87} Weaver & Kysar supra note 29 (arguing that courts should be re-examining the parameters of tort law considering the catastrophic impacts of climate change).

\textsuperscript{88} RWE v Lliuya Higher Regional Court of Hamm: Large emitters can be held liable for climate change impacts, GERMANWATCH, (Nov. 13, 2017).

\textsuperscript{89} Mr Lliuya’s house sits underneath a glacial lake, Lake Palcococha. The volume of the lake has increased eight fold in the past 40 years, with glacial melt directly contributing to its increased volume. His home is vulnerable to glacial outbursts - inundations of the natural moraine dams surrounding the lake that would lead to flood waves, possibly reaching over 3 metres. He based his claim on paragraph 1004 of the Germany Civil Code which deals with interference with property, \textit{Lliuya v RWE AG} Nov 23, 2015 (unauthorized translation provided by Germanwatch e.v.), 5.

\textsuperscript{90} Abatement costs requested were minimal, amounting to approximately €17,000. The first instance decision in the District Court of Essen dismissed the claim for the usual tort-based causation hurdles. The court stated that the lack of precision made the claim inadmissible, and RWE’s contribution to climate change was not sufficient to establish legal causality, citing the lack of linear causality between a particular source and particularized damage. Similar to the \textit{AEP} case, the court also mentioned that every living person is an emitter, and referred to the chain of causation as “scientifically disputed”. Electronic copy available at: https://ssrn.com/abstract=3379848
arguments that it was sufficient that RWE was partially responsible for the flood risk. The case was able to overcome, at least in principle, one of the most intractable legal hurdles to date in terms of tort-based actions against corporations: causation. While the civil law jurisdiction of Germany is far removed from common law jurisdictions such as the United States, the outcome of the RWE case demonstrates that some jurisdictions are willing to base their decisions on new scientific processes, and illustrates how the evolution of climate science could affect future U.S. lawsuits.

D. Managing climate science

In 2017 and 2018, government entities launched suits against a number of carbon-major corporations. While most of these cases are still at their procedural or initial substantive stages, issues of causation and federal versus state jurisdiction have already been in play. This second wave of cases can be divided into two groups, the first brought by cities of New York, and Oakland and San Francisco, which have made a more limited set of claims and where initial substantive decisions have already been made. The second group of claims has been brought by a number of cities and counties in California, as well as other government entities around the United States, based on a broader set of claims but where no substantive decisions have yet been made.

In the first group of cases, New York City claimed it both had and would incur substantial costs due to climate change, and that the largest five fossil fuel companies should be responsible for these costs as they were responsible for approximately 11% of carbon and methane pollution and had downplayed the risks of climate change. Their claim was sited in both public and private nuisance, as well as illegal trespass due to sea level rise. In July 2018, the district court granted a motion to dismiss filed by the defendant companies on the basis that federal common law governed the City’s claims as they were based on transnational emissions, and their

District Court of Essen, 15 December 2016 (unauthorized translation provided by Germanwatch e.v.), 6.
91 RWE appealed the decision in December 2017, and that appeal was denied in February 2018. The case will now move on to the evidentiary phase, and the court has requested expert evidence in two areas: that the flood/mudslide resulting from expansion of water posed serious threats to Mr. Lliuya’s property, and whether RWE’s emissions rose into the atmosphere and according to the laws of physics led to higher concentrations of GHGs in the Earth’s atmosphere.
92 1:18-cv-00182.
93 No. C17-06011 WHA and No C17-06012 WHA respectively.
94 No. 17-cv-0450; 18-cv-0458; 18-cv-0732; 17-cv-4929; 17-cv-4934 and 17-cv-4935. See infra Part II C.
claims were displaced by the Clean Air Act, as well the political question doctrine.\textsuperscript{95} The case demonstrates how difficult a hurdle the federal displacement issue is to overcome.

In the Oakland and San Francisco cases, the plaintiffs filed suit against the same five carbon-major corporations, seeking abatement, not damages, for the costs to them of adapting to sea level rise induced by climate change on the basis of public nuisance. One of the more interesting aspects of the case was that the judge ordered a tutorial on climate change that took place in March 2018. Judge Alsup requested specific information on the history of the scientific study on climate change as well as on the best science now available on global warming, glacial melt, sea rise and coastal flooding.\textsuperscript{96} The request for a scientific tutorial in a federal lawsuit was called “unprecedented.”\textsuperscript{97} This innovative approach to climate science may usher in a new approach in U.S. cases of judicial assessment and acknowledgement of climate science, including attribution science. The case demonstrated a more sophisticated judicial approach to climate science than demonstrated in the first wave of climate litigation.

Judge Alsup’s understanding of climate science is reflected in the judgment, which clearly stated that the case was not about climate science but about the law, “whether these producers of fossil fuels should pay for anticipated harm that will eventually flow from a rise in sea level.”\textsuperscript{98} Ultimately his answer was no, and the court dismissed the claim in June 2018, based on a number of grounds, including the federal displacement doctrine, and that the issue was largely a political one. The Court applied the Restatement (Second) of Torts’ definition of public nuisance,\textsuperscript{99} being an unreasonable interference with a right common to the general public. Whether the interference was unreasonable under the statutory test depended in part on weighing the harm of the conduct against the utility of the conduct. The judge found that it was necessary to consider the social value of fossil fuels which outweighed the harm of the conduct. The

\textsuperscript{95} An appeal has been launched by the plaintiffs.

\textsuperscript{96} Both Chevron’s lead attorney and Myles Allen for the plaintiff (and co-author of the original attribution study in 2004), presented to the judge. Chevron’s attorney stated that the company acknowledged that humans are playing a major role in climate change, but instead his presentation focused on the scientific uncertainty in the IPCC AR5 reports, particularly around sea level rise. The roles of population growth and economic development were also stressed. \textit{See} Warren Cornwall, \textit{In a San Francisco Courtroom, Climate Science Gets its Day on the Docket}, \textit{SCIENCE MAGAZINE} (Mar 22, 2018).

\textsuperscript{97} \textit{Id.}


\textsuperscript{99} \textit{RESTATEMENT (SECOND) OF TORTS} ch. 40, (Tent. Draft No. 17, 1971) § 821B.
judgment illustrates that in this second wave of climate litigation against corporations, judges are able and willing to assess complex climate science. But the case also illustrates that both the federal displacement doctrine combined with judicial reluctance to adjudicate corporate climate harms is alive and well in U.S. jurisprudence against carbon-major corporations, and will remain a stumbling block in federal common law claims.\footnote{The case has been appealed to the Ninth Circuit.}

In both the New York City and Oakland and San Francisco cases, the plaintiffs requested a motion to remand the case to the state level, in an attempt to avoid the federal displacement doctrine from the AEP case. In both cases this request was denied. In the Oakland and San Francisco case, Judge Alsup commented that if ever a problem “cried out for a uniform and comprehensive solution” at the federal level, it is climate change.\footnote{Order Denying Motion to Remand at 4, ¶ 26, California v. BP P.L.C., No. C 17-06011, No. C 17-06012 (N.D. Cal. Feb. 27, 2018).} The failure to invoke state law jurisdiction may have been a fatal flaw for the initial substantive decisions in this first group of cases, and has been taken into account by litigants the second group of cases. Most of the claims in the second group specifically ground their actions in a wider set of claims, including state-based common law and statutes.

\subsection*{E. Avoiding federal displacement}

The second group of cases brought by California cities and counties attempts to avoid the federal displacement doctrine by making a more diverse set of claims grounded in state law, including public and private nuisance, strict liability for failure to warn customers of the dangers of climate change, design defect, negligence and trespass.\footnote{Order Granting Motions to Remand.} These suits were patterned more closely on tobacco and asbestos litigation.\footnote{Olszynski et al. supra note 15 track the similarities between the tobacco and climate litigation, noting that tobacco norms evolved over time closely tied to evolving scientific understandings of tobacco’s impacts on human health. The authors describe the ‘scorched earth’ approach that tobacco companies’ initially adopted to personal injury litigation. These initial suits by plaintiffs all failed, in part due to tobacco’s vigorous litigation.} In both the...
tobacco and asbestos litigation, products that were later understood to create severe health and environmental risks, and where product manufacturers both knew and attempted to disguise the risks of their products, attracted liability. In the tobacco litigation, tobacco company defendants adopted a “scorched earth” litigation strategy, vigorously defending all of the suits against them. Even though the original tobacco litigation suits were unsuccessful, the litigation inspired legislative changes and eventually led to litigation success. Analogies can also be drawn with litigation recently launched by cities, counties and state’s attorneys general against manufacturers and distributors of opioids. A key distinction between all of these other litigation efforts and climate litigation is the widespread use and reliance on fossil fuels for global development, and this issue was key to Judge Alsup’s decision in the Oakland and San Francisco dismissal. Despite these numerous hurdles, Californian cities and counties have been procedurally successful at having their claims heard at the state and not federal level.

In his order, the judge noted that the AEP ruling did not resolve the issue of

strategies which denied the impact of smoking on human health. However, as the link between smoking and lung cancer evolved so did corporate strategies, shifting to personal responsibility defences. The authors look a decade into the future, characterized by mounting climate damages and in that context highlight the similarities between tobacco litigation and climate litigation against carbon major corporations. See also Ganguly et al. supra note 15, at 17, noting that USA v Philip Morris demonstrated that governments could recover health and environmental related costs. Similarities with asbestos litigation can also be noted. Pursuant to Fairchild v Glenhaven Funeral Ltd. [2002] UKHL 22, a leading UK torts case, a plaintiff who contracted asbestos while working for different employers was able to recover from one defendant on the basis that the company had materially increased the risk of harm on the basis of joint and several liability, even though he was unable to pinpoint which employer had directly caused the harm. See also David A. Grossman, Warming up to a Not-So-Radical Idea: Tort-Based Climate Change Litigation, 28 COLUM. J. ENVTL. L. 1, 22–31 (2003) and Michael Gerrard, What Litigation of a Climate Nuisance Suit Might Look Like, 12 SUSTAINABLE DEV. L. & POL’Y 11, 12–14, 56 (2012).

104 Olszynski et al. supra note 15.


106 Nicole Fisher, Opioid Lawsuits On Par To Become Largest Civil Litigation Agreement in U.S. History FORBES (Oct 18, 2018); Joanna Walters, Sackler Family Members Face Mass Litigation and Criminal Investigations Over Opioid Crisis THE GUARDIAN, (Nov 19, 2018), (noting the Sackler family which own Purdue Pharma, one of the manufacturers of OxyContin, is facing class action litigation); Cassandra Bassler, Suffolk County Sues Purdue Pharma Family Over Opioids NPR NEWS (Oct 25, 2018).

whether state law claims were preempted by federal statutes such as the Clean Air Act. In his view, once federal common law is displaced by a federal statute, it is no longer possible that state law claims could be superceded by federal common law. This means that federal law does not preclude the plaintiffs from asserting state law claims. It also means, in turn, that federal law does not govern the plaintiff’s claim, and therefore this case could avoid the federal displacement doctrine. The decision cites only a few instances where federal law will preclude state law, and only in narrow circumstances justify removing a case to federal court.\(^{108}\)

This opinion provides important insights into how other claims in the second group of cases, and also future cases, made against carbon-major corporations may be decided. In 2018, U.S. states and cities filed several new suits which have not yet resulted in orders or judgments. In April 2018, the Board of County Commissioners of Boulder Council along with the City of Boulder initiated several claims against carbon-major companies for public and private nuisance, trespass, deceptive trade practices and violations of the Colorado Consumer Protection Act.\(^{109}\) In May 2018, King County in Washington State filed a suit against the five largest fossil fuel corporations for coastal harms, flooding, storm surge and decreased mountain snowpack.\(^{110}\) In July 2018, the State of Rhode Island and the Mayor and City of Baltimore filed similar suits against fossil fuel companies citing public and private nuisance, strict liability for failure to warn and design defect, negligence design defect, and breaches of the Rhode Island State Environmental Rights Act and Maryland Consumer Protection Act.\(^{111}\) Litigants in the second group are clearly responding to the failure of the first wave, and crafting their pleadings more directly to invoke state law.

In all of these cases, the defendants companies submitted motions to remove the cases to federal court on the basis that they involved a significant question of federal common law and federal energy law policies. Federal preemption of state law claims is likely to be a significant issue in all of these cases and so a number of these cases may stand or fall together.

\(^{108}\) The opinion cites instances of “complete pre-emption” by a specified federal statute. It also cites the Grable jurisdiction as requiring the defendants to cite specific instances of federal law. The Clean Air Act and Clean Water Act both contain savings clauses and therefore may preserve state-based causes of action.

\(^{109}\) 1:18-cv-01672.

\(^{110}\) 1:18-2-11859-0.

\(^{111}\) 1:18-cv-00395 and 1:18-cv-02357 respectively. In addition, in November 2018 a group of crab fishermen in California sued 30 oil and gas companies for damage to their livelihoods due to global warming induced algae blooms which have shortened the crab season, see Pacific Coast Federation of Fishermen’s Associations Inc v Chevron Corp Inc, CGC-18-571285.
In October 2018, King County was granted their request for a stay in proceedings until the Ninth Circuit appeal of the San Francisco and Oakland case was decided. While these cases are at the appellate and preliminary stages respectively, they do provide evidence of a growing trend of corporate climate litigation in the United States, increasing reliance on climate attribution science and state-based claims. The case of Bell v Cheswick Generating Station demonstrates that federal preemption under the Clean Air Act may not be a bar to state-based claims.112 This case could be applied to GHG emissions, allowing state-based claims by citizen suits regarding state-based emissions, but it would likely not apply to interstate emissions.113 If this analysis is correct, it would create an almost insurmountable hurdle for the second wave of climate litigation. Even if they are successful in avoiding federal preemption, state-based claims are unlikely to be successful given the international and interstate nature of GHG emissions. These new tort suits could be successful if courts take a more innovative approach to tort law. Tort law can fill the gap in the statutory regime by providing a compensatory remedy to individuals, which the Clean Air Act does not.114 This is illustrated by a new development in the second wave of corporate climate litigation, of one industry suing another industry over climate impacts. In 2018, the Pacific Coast Federation of Fishermen’s Association submitted a claim against a number of carbon-major corporations for damage caused to their industry from the impacts of climate change. A number of academics are skeptical of the utility of tort law in climate litigation,115 and Kysar has suggested that climate change,

112 734 F.3d 188 (3d Cir. 2013)ren‘g en banc denied No. 12-4216 (3d Cir. Sept 23, 2013). Here a community around a Pennsylvania power generating station complained that fly ash and unburned coal settled on their property causing considerable nuisance to them. The Court of Appeal for the Third Circuit held that the Clean Air Act did not pre-empt the plaintiffs’ case. The case pointed specifically to the savings clause of the Clean Air Act that preserves causes of action despite the comprehensive scope of the Act and allows States to adopt or enforce more progressive standards for emissions but specifically also allows citizen suits. For an analysis of the Bell case, see Samantha Caravello, Bell v Cheswick Generating Station 38 HARVARD ENVIRONMENTAL LAW REVIEW 465 (2014).

113 The Bell case followed a previous case which revolved around the savings clause under the Clean Water Act (the savings clause under the Clean Water Act is largely similar to that of the Clean Air Act), International Paper Co. v Ouellette 479 U.S. 481 (1987). The Ouellette case states that while the savings clause allows states to impose higher standards on water sources within their borders, and individuals are not preempted from bringing claims under state law, it only applied to sources of pollution within that state and not to pollution sources within a different state.

114 Caravello, supra note 112, at 475.

115 Eric Biber, Climate Change and Backlash, 17 NYU ENT. LJ 1295 (2009); L.H.
due to its diffuse and disparate nature and effects, constitutes a “paradigmatic antitort.”\textsuperscript{116} However, the legally disruptive nature of climate change could mean that tort law will evolve to take into account climate change.\textsuperscript{117} Developments in climate science show the contributions of companies to climate impacts and may be sufficient to overcome causation hurdles.

Even if these cases are not successful, climate litigation could serve as a series of “prods and pleas,”\textsuperscript{118} effectively calling attention to the inadequacies of existing legal approaches to climate change. Kysar notes that even if climate litigation efforts fail, the use of tort law can contribute to a larger ecosystem of governance institutions, and judicial engagement helps frame litigants’ suffering and calls public attention to the issue.\textsuperscript{119} The effects of climate change are certainly being felt in the cities and states bringing the suits, with large financial consequences for government entities which are having to pay for adaptation actions, even if the emissions are being made elsewhere. The international nature of emissions did not hinder the Court in the \textit{RWE} case, and that case could eventually influence U.S. courts as well.

International judicial decisions are referring to and relying on each other, and consequently inspiring further climate litigation in other jurisdictions. Indeed, the plaintiffs in the \textit{RWE} case referred to the Dutch \textit{Urgenda} case, itself an example of “progressive legal reasoning and development” and “ambitious evolution of doctrine”,\textsuperscript{120} particularly in the area of causation.\textsuperscript{121} In October 2018 the Hague Court of Appeal found that

\begin{itemize}
  \item Donald Kysar, \textit{What Climate Change Can Do About Tort Law}, 41 ENVT. L. 1, 3–4 (2011).
  \item Fisher et al., supra note 30, at 190.
  \item Id.
  \item See \textit{The Urgenda Climate Case Against the Dutch Government}, URGENDA \url{https://www.urgenda.nl/en/themas/climate-case} (last visited Oct 9, 2018). The \textit{Urgenda} case was brought by a Dutch NGO claiming that the Dutch state should reduce its GHG emissions to 25\% by 2030 compared to 1990 levels, below the proportion of emissions agreed in the EU burden sharing emissions agreement. The NGO was successful, and the government appealed. On October 9, 2018 the Hague Court of Appeal upheld the 2015 decision, citing failure to appropriately reduce GHG emissions constituted a breach of the European Convention on Human Rights. The case has inspired litigation around the world on similar grounds in the UK, US, Belgium, New Zealand, Ireland and Switzerland.
\end{itemize}
failure of the Dutch government to reduce its emissions to 25% by 2030 below 1990 levels would constitute a breach of the European Convention on Human Rights. The original decision in 2015 had already inspired similar litigation in the EU and beyond, and the appellate decision is likely to lead to progressive regulatory change within the EU. The 2015, Urgenda case neatly glided over the causation hurdles of past cases by stating that a sufficient causal link can be presumed to exist between Dutch emissions and global climate change, even though Dutch emissions constitute a small fraction of global emissions.\textsuperscript{122}

The interaction between these judgments points to a global conversation carried on by courts on the issue of causation, whether through torts, human rights or private law mechanisms. Whether the RWE case’s approach to partial causation will be relied upon in U.S. or cases in other jurisdictions against carbon-major corporations remains to be seen. Nonetheless, it seems likely that, as European courts and courts in other countries hold carbon majors accountable, U.S. localities, NGOs and individuals will continue to pursue claims in U.S. courts. Multinational corporations such as carbon-majors are sensitive to progressive decisions in other jurisdictions due to the global reach of their operations. Litigation risk will persist for carbon-majors, even if the second wave of litigation is unsuccessful.

Beyond litigation risk, regulatory proposals are emerging. In September 2018, Senator Elizabeth Warren proposed a Bill in Congress, the Climate Change Disclosure Act, which would require disclosure to the SEC of a corporation’s total fossil fuel-related assets, how those assets would be affected by climate change, and how directors are managing climate risks to those assets.\textsuperscript{123} In January 2019, the Energy Innovation and Carbon Dividend Act was reintroduced to Congress to price carbon, provide revenue to households and bring domestic greenhouse gas emissions down

\textsuperscript{122} In 2019 NGOs in The Netherlands on behalf of 30,000 people in 70 countries sued Shell to legally compel them to reduce emissions, Friends of the Earth International, \textit{Netherlands: Activists sue Shell over Climate Change BUSINESS & HUMAN RIGHTS RESOURCE CENTRE} (April 8, 2019), \url{https://www.business-humanrights.org/en/netherlands-activists-sue-shell-over-climate-change} (last visited Jul 10, 2019).

\textsuperscript{123} Karen Savage, \textit{New bill would require the SEC to police climate risks}, \textit{CLIMATE LIABILITY NEWS} (Sept. 20, 2018), \url{https://bit.ly/2R1kD8N} (last visited Jan 22, 2019). The recent experience with European privacy laws and data protection is also illustrative. The EU General Data Protection Regulation has introduced sweeping changes in the management of personal data, along with significant fines. Large technology companies such as Google and Facebook have chosen to comply with the regulations across all of their corporate entities.
90 per cent by 2050. The Green New Deal has attracted significant public attention. While the resolution in its current form is broad, it proposes a set of economic stimulus programs designed to address both climate change and economic inequality. It aims for net-zero emissions through decarbonizing the electricity grid, transportation systems, and industry. The Democratic Party is also considering making climate change a fundamental platform in the 2020 federal election in order to appeal to younger voters. Regulatory approaches would certainly provide a more comprehensive and systemic approach to climate change, but may be slower to emerge in the United States than in other jurisdictions. Even if this second wave of climate litigation faces setbacks or missteps, its effects, combined with the changing balance of the risks of climate change to corporations, will still be felt within corporate law.

IV. NEW RISKS AND RESPONSIBILITIES FOR CORPORATE ACTORS

The impacts of climate change are increasing, and with them the risks to corporations are also increasing. Climate impacts and risks entail financial costs for corporations, but climate change also provides opportunities to corporations through a transition to clean energy. Private law can make substantive contributions to climate change and the global energy transition.

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125 Recognizing the duty of the federal government to create a green new deal, H. RES. (Feb. 7 2019); David Roberts, *There’s now an official green new deal. Here’s what’s in it. Vox* (Feb 7, 2019); Robinson Meyer, *The Democratic Party Wants to Make Climate Policy Exciting*, THE ATLANTIC (Dec. 5, 2018).

126 Coral Davenport & Sheryl Gay Stolberg, *Pressed by Climate Activists, Senate Democrats Plan to ‘Go on Offense’* THE NEW YORK TIMES (March 4, 2019).

127 A comprehensive treatment of state and federal action on climate change is beyond the scope of this article, but it is clear that despite existing federal hurdles on climate regulation, regulatory action is occurring at the state and local levels. For example, the Colorado Climate Action Plan complements a 2017 target to reduce GHG emissions by 26% by 2020, https://www.adaptationclearinghouse.org/resources/colorado-climate-plan-2018-update-state-level-policies-and-strategies-to-mitigate-and-adapt.html (last visited March 13 2019), and North Carolina plans to cut GHG emissions by 40% by 2025 https://deq.nc.gov/energy-climate/climate-change (last visited March 13, 2019). Oregon has committed to reducing GHG emissions by 10% below 1990 levels by 2020, and by 75% below 1990 levels by 2050 https://www.keeponcool.org/meeting-our-goals (last visited March 13, 2019). California has also agreed a goal of transitioning to 100% clean electricity power by 2045, see Camila Domonoske, *California sets goal of 100 percent clean electric power by 2045* NPR (Sept 10, 2018).
away from fossil fuels. Directors’ duties are purposefully open-textured and able to advance and change depending on evolving industry norms and standards. Increasing climate impacts highlight the growing risk of climate change for corporations, and therefore have implications for the interpretation of fiduciary duties. Fiduciary duties remain “largely agnostic” on climate change – allowing directors and officers significant flexibility in how they approach transitions away from fossil fuels.128 Fiduciary duties provide directors with sufficient flexibility to accommodate climate risks, and directors have obligations to both assess and keep informed of risks to their business, and consequently to share this information with investors.

A. Increasing climate risks for carbon-majors

Climate change and the failure of mitigation and adaptation efforts taken together consistently rank in the top five global risks assessed by the World Economic Forum in the past several years.129 The risks of climate change are estimated to impact a significant portion of global assets, negatively impacting global fiscal stability, with up to 30% of global manageable assets at risk.130 Between now and the end of the century this could lead to between four to forty three trillion dollars’ worth of assets at risk.131

Climate risk can be separated into two main categories for corporations: 1) the transition risks of transitioning to a lower-carbon economy which may involve policy or regulatory changes as well as litigation, technology, market changes and reputational risks; and 2) the physical risks to operational assets of businesses, which may be both acute and event-driven, as well as chronic due to slow impacts of climate change such as sea level rise.132 The latest Fourth National Climate Assessment has estimated that more frequent and intense extreme weather events and climate-related events will continue to damage infrastructure, property,
labor productivity and in the energy arena will reduce the efficiency of power generation.\(^\text{133}\)

Climate impacts will also affect U.S. trade and the broader economy, disrupting operations and supply chains both domestically and internationally, with annual losses in some economic sectors reaching the hundreds of billions of dollars by the end of the century.\(^\text{134}\) Climate change is changing physical environments and so is affecting business facilities, operations, and critical supply and distribution chains. \(^\text{135}\) Energy infrastructure is often located in coastal areas and is vulnerable to sea level rise, storm surges and flooding. \(^\text{136}\) Decreased water and power supplies will also affect energy companies which rely on these resources for extraction and exploitation of fossil fuels. \(^\text{137}\) Their employees and customers will also be negatively affected. \(^\text{138}\)

Climate change poses a new and intensified set of risks for the fossil fuel industry, including government policies and legislation, financial restrictions by lenders and insurers, and hostile legal and shareholder actions. \(^\text{139}\) These companies can expect increased property destruction, asset devaluations, and increasing insurance and commodity costs. \(^\text{140}\) They are also facing changing geopolitical conditions with declining fortunes of petro states, and challenges from new technology. \(^\text{141}\) Financial risks are also increasing, from stranded assets, divestment and reduced wealth of fossil fuel exporting countries, with investor-owned firms in the developed world likely to feel the impacts of these cumulative risks sooner. \(^\text{142}\) Carbon-majors are feeling the effects of climate change now. Natural disasters in 2017 in the United States caused over $300 billion nationwide, with effects being felt more acutely in Texas and Florida. \(^\text{143}\) Energy companies operating in


\(^{134}\) *Id.*, 26.


\(^{136}\) *Id.*, 5.

\(^{137}\) *Id.*, iv.

\(^{138}\) *Id.*

\(^{139}\) Krane, *supra* note 39.


\(^{141}\) Krane, *supra* note 39, 2.

\(^{142}\) *Id.*, (noting however that risks will be felt at different time scales across the fossil fuel industry with coal companies feeling the impacts sooner, and oil industry later as fewer substitutes are available and transportation will continue to rely on oil).

the Gulf of Mexico were particularly badly hit, and continue to be worried about extreme events. Melting permafrost in the Artic also disrupts transportation routes, therefore limiting operating capacity and increasing operational costs. Risks extend internationally as well for these corporations with capital intensive operating structures and assets situated in some of the most vulnerable parts of the world to climate change. While energy companies are some of the most exposed to climate risk, they demonstrate limited recognition, at least publicly, to physical and other climate risks.

The assumption that companies are failing to account for climate risk has been borne out by quantitative research looking at 1,630 large companies’ reporting on climate change. The report concluded that companies were not adequately characterizing climate risk in their reporting or adequately preparing for its impacts. The authors found that the potential magnitude of the financial impacts of climate risk was a key blind spot for companies. Directors and managers were also failing to account for indirect and systemic characteristics of climate risk. Companies are focusing only on a narrow view of climate risk, perhaps in part due to a predisposition to short-term thinking, the tendency to heavily discount future costs, and the potential of reporting and disclosure of climate risks to lead to corporate disadvantage in the short term. Short-term thinking is cited as one of the most entrenched barrier to progressive climate action by corporations. But climate change is posing both risks and opportunities for corporations, and new research points to opportunities even for carbon-

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144 Id., 4, Noble Energy stated that the financial impacts of extreme weather events and damages would not be fully recoverable for its operations in the Gulf due to insufficient insurance and could negatively impact revenue; Dipka Bambhani, *Energy Companies Could Feel The Effects of Climate Change on Their Bottom Lines*, FORBES (Oct. 25, 2018). ExxonMobil incurred $135 million dollars of costs due to property damage caused by flood debris damaging a pipeline under Yellowstone river in Montana, C2ES, *supra* note 135.

145 Bambahani, *supra* note 144.

146 Schroders, *Climate Change: the forgotten physical risks* (July 2018).

147 *Id.*

148 Goldstein et al. *supra* note 130.

149 *Id.* It should be noted that the insurance industry has been one of the first-movers on climate action, due to their high exposure, see for example Allianz Group and World Wildlife Fund, *Climate Change and Insurance: An Agenda for Action in the United States* 3 (2006) [http://www.climateneeds.umd.edu/pdf/AllizWWFreport.pdf](http://www.climateneeds.umd.edu/pdf/AllizWWFreport.pdf) (last visited Jan 20, 2019).

150 Goldstein et al. *supra* note 130. While the authors focused only on physical risks, they compared the estimated price tag of climate change in the trillions of dollars with the aggregate financial risks reported from companies which only amounted to tens of billions of dollars.

151 *Id.*

152 *Infra* Part IV E.
majors in the transition away from fossil fuels.

B. Increasing climate opportunities for carbon-majors

Even for carbon-major corporations, long-term energy transitions away from fossil fuels can be profitable. A recent report by Goldman Sachs Group Inc. highlights the opportunities of a transition to a low carbon economy for global energy markets, and in particular for ‘Big Oils’, being the largest carbon-major corporations.\textsuperscript{153} It highlights the business case for clean energy transitions for ‘Big Oil’ carbon majors.

The report anticipates that as a result of lack of funding from financial institutions for oil and gas projects in the near future, as well as key parts of the oil value chain becoming stranded assets, the market in oil and gas will tighten.\textsuperscript{154} The report notes that while in the short term tightening financial conditions for hydrocarbons may lead to higher returns for Big Oils as they consolidate their grip on this industry, in the longer term the report argues that this funding could be used by Big Oils to convert their business to Big Energy. This could be achieved by leveraging their competitive advantages in global supply chain management, technical expertise and global footprints to replicate vertical integration in energy by purchasing utilities and providing energy from diversified sources including biofuels and renewables.\textsuperscript{155} Most importantly, this report highlights the business case for transition, stating that the blended returns on these new investments could be materially higher than returns in the past decade on just oil and gas.\textsuperscript{156}

The second wave of litigation also highlights the risks of climate change to investors in these corporations. Armed with more and better information about climate risk, investors could also put increased pressure on directors to act on the financial risks and opportunities posed by climate change. A recent report from Wood Mckenzie connects increasing pressure from investors on transparency on emissions to capital market responses.\textsuperscript{157}

It notes that investors will increasingly seek new instruments for green


\textsuperscript{154} Id., 15. Although it should be noted that in the natural gas industry U.S. markets are flooded and prices are expected to stay low for some time.

\textsuperscript{155} Id., 3.

\textsuperscript{156} Id., 3.

social investments. Combined with drivers of the transition to renewables and electrification of transport, they estimate that a “point of singularity” will emerge in 2035 where the global energy transition away from fossil fuels will be unstoppable, and new energy sources will become the dominant choice for investments.\(^{158}\)

This transition will be supported by an “almost ubiquitous” societal push towards a sustainable future.\(^{159}\) The global energy transition is information that directors cannot afford to ignore while maintaining their managerial decisions and capital investment choices safely within the realm of compliance with fiduciary duties. Investors and shareholders are well resourced and experienced litigants,\(^{160}\) and corporate law suits could become increasingly popular if directors do not take the risks of climate change to their businesses more seriously, and consider energy transitions as part of their strategic business plans. Research that demonstrates the financial benefits of the global energy transition specifically to carbon-major corporations takes the issue beyond zero-sum environmentalism,\(^{161}\) to a legitimate business decision. Therefore the risks of climate change combined with the business case for transition may lead to cleaner energy choices by directors.

Despite the opportunities for transition available to carbon-major corporations, they have largely failed to seize these opportunities. The response has been uneven, with Shell recently announcing short-term caps on emissions as a result of investor pressure,\(^{162}\) but with U.S. based carbon-majors in particular, such as ExxonMobil, doubling down on investments in fossil fuels, ignoring the risks of climate change to their businesses and to society.\(^{163}\) This renewed investment in fossil fuels is based on the perception that efforts to reduce emissions undermines short-term commercial opportunities to monetize existing fossil fuel reserves.\(^{164}\) However, the failure of climate policy is likely to only broaden risks across the global economy and increase risks to assets of carbon-majors.\(^{165}\) These short-term decisions leave carbon-major directors even more exposed to continued climate litigation. The *Ramirez v ExxonMobil* case\(^{166}\) is the first

\(^{158}\) Id., 1.

\(^{159}\) Id., 2.


\(^{163}\) *Crude awakening: ExxonMobil and the oil industry are making a bet that could end up wrecking the climate*, THE ECONOMIST (February 9th-15th 2019).

\(^{164}\) Krane, *supra* note 39, 1.

\(^{165}\) Id., 3.

\(^{166}\) *Supra* note 14.
case which considers the issue of climate change on the basis of fiduciary duties.

C. Corporate law-based climate litigation

Several suits and investigations have been launched in the United States that involve corporate and securities law, including securities disclosure claims, as well as investigations by the New York and Massachusetts Attorneys General. This section will focus on a new case

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167 While this article focuses on directors’ fiduciary duties, the fiduciary duties of pension fund managers have also been litigated and recently dismissed by a Texas court. In the Fentress v ExxonMobil Corp case 4:16-cv-03484, a class action suit was brought by employees of the Exxon Savings Plan on the basis that senior corporate officers of the company who were fiduciaries of the employee stock pension plan knew, or should have known, that the stock was artificially inflated due to the risks of climate change. They claimed that the pension managers purchased $800 million worth of Exxon stocks despite the climate change risks, and the company should have written down its assets as stranded, claiming this was a breach of the duty of prudence, which required fiduciaries to manage the assets with care, skill, prudence and diligence pursuant to paragraph 1104(a)(1)(B). A motion to dismiss by Exxon on March 30, 2018 was accepted by the Texas court on the basis that the plaintiffs failed to show the risks of climate change had not already been included in the stock price. Relying on the efficient market hypothesis, the judge decided that the markets could take into account public information on climate change, and the plaintiffs had not plausibly linked the realities of climate change to the future health of an oil and gas company. The issue of fiduciary duties for pension fund managers became a relevant one in the case, with the plaintiffs having to prove that the duty of prudence had been violated on the basis of non-public information. In order to prove a breach of fiduciary duty, it would have to prove that an alternative action was available that was so clearly beneficial that a prudent fiduciary could not conclude it would be more likely to harm the fund than help it. The plaintiffs put forward three alternative actions: corrective disclosures regarding Exxon’s reserves, halting new purchase orders of Exxon stock, and investing in low-cost hedging stock. These were all dismissed as inappropriate by the judge on the basis that corrective disclosures and freezing stock trading would ultimately lower the price of the stock and could do more harm than good. While unsuccessful here, more suits regarding lack of disclosure by private plaintiffs in the context of fiduciary duties are likely to continue where stock prices drop.

168 A subpoena was filed pursuant to the N.Y. Executive Law Article 5, N.Y. Business Law Article 22, NY General Business Law Article 32-A, and the Martin Act. Together these prohibit fraudulent practices in connection with securities sold in New York. The investigation is designed to discover whether Exxon’s historical securities filings were misleading because they failed to disclose Exxon’s internal projections regarding the potential costs of both climate change and climate change regulation to the company. In February 2016, the Attorney General requested documents regarding whether the potential for stranded assets should have been disclosed, and in May and July 2017 the Attorney General served subpoenas requiring testimony and documents. The Massachusetts Attorney General served Exxon with a Civil Investigative Demand pursuing similar fraudulent claims. In response, Exxon sued the Attorneys General of New York and Massachusetts for

Electronic copy available at: https://ssrn.com/abstract=3379848
which turned on fiduciary duties in the context of securities disclosures and corporate statements about climate risks. In 2017, a suit was launched regarding misleading Exxon reserves in Ramirez v. ExxonMobil. The Plaintiffs in the Ramirez case were successful at the pleadings stage and the suit is continuing. The Northern District of Texas court in August 2018 held that the plaintiffs, the Greater Pennsylvania Carpenters Pension Fund, successfully pleaded alleged material misrepresentations or omissions constituting securities fraud by ExxonMobil and breach of the duty of loyalty by a number of its corporate directors and officers, regarding losses incurred to publically traded stock acquired between 2014 and 2017. These losses were attributed by the plaintiff to the failure by the directors and financial officers of ExxonMobil to recognize and inform investors of the business risks of climate change, and the value impairment of unconventional fossil fuel operations in the Canadian tar sands, the Rocky Mountain Dry Gas Operation and Kearl Operations. The directors’ actions led, in 2016, to the company disclosing that 20% of its once proved reserves were no longer economically feasible, and therefore fell outside of the SEC definition of proved reserves, leading to a $2 billion impairment announcement in 2017.

The Plaintiffs alleged securities fraud under Sections 10(b) and 20(a) of the Securities Exchange Act 1934 and Rule 10b-5. The plaintiffs were successful at pleading material misstatement, including by omission, as breach of the duty of loyalty by the company and its officers in understating the proxy cost of carbon it used, and for misstatements made in Form 10-K, and in its Corporate Outlook. They successfully pleaded that as shareholders they were misled by statements made by directors and officers in the company’s policy documents. These statements were misleading in that they stated that the company was appropriately considering the potential for changing climate regulations as well as carbon asset risks and climate risks to its business.

abuse of process, civil conspiracy and violations of Exxon’s constitutional rights to free speech. Exxon claimed the investigations were designed to “cleanse the public square of alternative viewpoints.” A decision in March 2018 in the United States district court in New York provided a scathing order dismissing the motions by Exxon as a “wild stretch of logic”. In spite of Exxon’s judicial protests, it appears that these investigations might bear fruit, as the Attorney General of NY recently settled with Peabody Energy, requiring a restatement of its financial disclosures. In August 2018, Exxon was mandated to turn over more financial documents, and the judge urged the Attorney General to bring its investigation to a close and decide whether or not to press charges. In October 2018, the New York Attorney General decided to file a lawsuit against Exxon for defrauding investors over the financial risks of climate change due to changing climate change regulation.

The Ramirez suit focuses specifically on directors’ duties and duties to disclose relevant information on climate change and climate risk to shareholders in the securities context. The case is evidence of the growing use and relevance of corporate and securities law, and more specifically fiduciary duties, in the context of climate change litigation.

D. Fiduciary duties in the context of climate risk

In the absence of takeover circumstances, directors have obligations to manage the business in the best interests of the corporation, and have the flexibility to take a long-term management approach. Fiduciary duties are made up of two primary duties: those of care and loyalty. The duty of care requires that directors make decisions in a carefully considered manner. Courts want to know that directors have considered all material information reasonably available to them, and this would now include climate risks and opportunities based on the best scientifically available information and best industry practice. The duty of care could be applicable where directors fail to take into account material information regarding the risks climate change poses to their businesses, with courts focusing on the process of the directors’ decision-making, and whether the decisions were made in good faith.

The duty of loyalty as interpreted by Stone v Ritter provides that

170 Katz v. Oak Industries, 508 A.2d 873 (Del. 1986). The Revlon doctrine applies in takeover circumstances in Delaware where directors in those circumstances can deviate from the business judgment rule and can focus on the short-term interests of stockholders instead of the long-term interest of the corporation, see Derek J. Famulari, ‘The Revlon Doctrine – the Fiduciary Duties of Directors when Targets of Corporate Takeovers and Mergers’


https://lawprofessors.typepad.com/business_law/2010/09/is-the-revlon-duty-creeping-into-the-business-judgment-rule-no.html (last visited Feb 20, 2019), See also Andrew A. Schwartz, The Perpetual Corporation, 80 GEO. WASH. L. REV. 764 (2012) (highlighting that given the perpetual existence of corporations, “immortal investing” should be the guiding principle for corporate directors, which would have public benefits including acting as stewards for natural resources).


172 Wallace supra note 139, 764.

173 Stone v. Ritter, 911 A.2d 62 (Del. 2006). The decision is not without its critics, with
directors have a responsibility to ensure that appropriate information and reporting systems are established by management to ensure compliance with key regulatory regimes. The duty of loyalty can be violated if directors demonstrate a conscious disregard for their responsibilities. Such disregard will demonstrate that they have not discharged their fiduciary obligations in good faith. According to the Disney case, acts of bad faith include where a director intentionally acts with a purpose other than that of advancing the best interests of the corporation, where she acts with the intention to violate applicable law, or intentionally fails to act in the face of a known duty to act, demonstrating a conscious disregard for her duties. Combined, these duties of care and loyalty focus the courts’ attention on whether the director was fully informed, disinterested and independent in her decision making.

The business judgment rule is a largely process-based rule as defined in Delaware, and used by courts to assess directors’ decisions and whether

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Bainbridge supra note 158 states that this intentional failure to act constituting a breach of the duty of loyalty guts the business judgment rule.


175 Stone v. Ritter 911 A.2d 62 (Del. 2006). The Caremark case illustrated that in limited circumstances high profile oversight failures could be regarded as not just gross negligence by directors but instead as disloyalty for sustainable or systemic failure to attempt to assure a reasonable information and reporting system exists, and illustrates the increasing importance of board function under Delaware law, and the need for the Board to be fully informed, Wallace supra note 139, 761 (noting however the subsequent Citigroup derivative action suit, Re Citigroup Inc Shareholder Derivative Litigation 964 A 2d 106, casts doubt on the Caremark approach). Marc Moore highlights how difficult this threshold is to reach in Delaware Courts in the area of systemic risk oversight, citing the Citigroup shareholder derivative litigation, Marc T. Moore, Redressing Risk Oversight Failure in UK and US Listed Companies: Lessons from the RBS and Citigroup Litigation, 18 EUR BUS ORG LAW REV 733 (2017) (noting that security disclosure violations may be a more successful route to addressing systemic risk failures by directors than directors’ duties).

176 Id.

177 Re Walt Disney Co. Deriv. Litigation 906A. 2d 27, 67 (Del. 2006). Wallace notes that the Stone v Ritter case requires that directors must have been conscious of the fact they were not monitoring and requires ‘persistent indolence’ on their party in order for a claim of oversight failure to be successful, although he notes the duty of oversight is distinguishable from the duty of care to take decisions on strategic climate action; Wallace, supra note 140, 761 (2009).

178 Although even if a director is interested in a transaction the transaction could still be deemed to be fair, see Bayer v Beran, 47 N.Y.S.2d 2 (Sup. Ct. 1944).
those decisions complied with their directors’ duties. Under this rule, the court is not concerned with the content of the decision made by a director, but instead with the process by which the decision was made. Absent bad faith or self-dealing, courts under the business judgment rule presume that directors have employed their own appropriate business judgment to the issue at hand. The court will assess “the good faith or rationality of the process employed.” However, as a result of this emphasis on process, even if the outcome is ill-advised, provided the decision is the product of good faith and a rational process, courts are unlikely to intervene. Fershee notes that the increasing focus on profitmaking by directors may narrow directors’ decision making power. He notes that this increasing turn in Delaware towards profitability may convert the business judgment rule away from an abstention rule to a more intrusive standard assumed by courts, marking a significant departure from its historic interpretations.

There is a presumption that, in order to benefit from the business judgment rule, directors must have informed themselves of all material information and acted with care on the basis of that information. Directors should also act in accordance with their duties of loyalty and so the business judgment rule presumes directors have acted in good faith and in the best interests of the corporation.

The case of Pfeffer v Redstone established that making a materially false or misleading statement to shareholders can violate state law fiduciary duties. In the securities law context, according to the Delaware Omnicare decision, directors will breach their duty of loyalty if their statements to shareholders are not honest, and this will include where their opinion is not

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180 Re Caremark Intl, 698 A.2d at 967. Elhange argues that the business judgment rule was established as courts could not figure out what maximizes profits, and so rely on directors to do so, see Einer Elhange, Sacrificing Corporate Profits in the Public Interest, 80(3) NYU L. REV. 733, 743 (2005).

181 Bainbridge supra note 173.

182 Fershee, supra note 169, 363 (pointing out there is no reason for a community service mission to itself not serve the purpose of promoting the value of the corporation for the benefit of its shareholders).

183 Id.

184 Robert T. Miller, Wrongful Omissions by Corporate Directors: Stone v. Ritter And Adapting the Process Model of the Delaware Business Judgement Rule, 10 U. PA. J. BUS. & EMP. L. 911 (2008) (noting that violation of directors’ duties for omission is one of the most difficult to prove, depending on whether a director failed to consider acting at all, or considered an action and then decided not to act).

185 965 A.2d 676 (Del. 2009).
honestly held.\textsuperscript{186} If facts such as the risks of climate change to the business are either held by the company or within the knowledge of directors, and would undermine any opinion given by directors to shareholders, this could lead to personal liability for breach of the duty of loyalty.\textsuperscript{187}

At the pleadings stage, the District Court in the Ramirez case paid significant attention to the Omnicare decision in the context of material misstatements made by officers of ExxonMobil. While Exxon attempted to rely on the Omnicare decision by characterising its asset valuations and impairment statements as opinions only, the Court was clear that if underlying facts are not provided to shareholders, and contradict statements made, that can render directors’ statements misleading by omission.\textsuperscript{188} The Court noted that according to the Omnicare standard, even if the speaker genuinely holds opinions expressed, it could still constitute a material misstatement by omission if the speaker omits material facts about the speaker’s inquiry into or knowledge concerning a statement of opinion if those omitted facts conflict with what a reasonable investor would take from the statements. Officers’ opinions regarding the Rocky Mountain Dry Gas Operation not being impaired necessarily omitted particular facts which made their opinions materially misleading.\textsuperscript{189} The officers’ positions on the board and their familiarity with the proxy cost for carbon used by the company exposed them to potential breach of their directors’ duties.

Increased litigation and escalating climate risks therefore have legal implications for directors’ and officers’ liability. Impact litigation against carbon-major corporations raises the risk metrics of climate change for their businesses, and also raises the profile of climate change for directors and investors. Directors will breach their duties of care and loyalty if they have

\textsuperscript{186} Omnicare v. Laborers District Council Constr. Ind. Pens. Fund, 135 S. Ct. 1318 (2015). There can also be links between fiduciary duties and federal securities law in that federal securities law may implicate state law fiduciary duties.

\textsuperscript{187} Cynthia A. Williams: Hearing Before the Philippines Human Rights Commission, New York (Sept. 28, 2018) (on file with author). Cynthia A. Williams and David Estrin submitted a summary of recommended measures to the Philippines Commission on Human Rights Inquiry at the hearing in New York on 28\textsuperscript{th} September 2018 outlining a number of legal obligations of officers and directors of carbon major enterprises and their investors, as well as recommended voluntary actions by these entities, including committing to corporate policies and actions to achieve emission reductions and decarbonisation of their primary energy supplies, develop specific business plans and investment allocation to ensure peaking of carbon emissions by 2020 using minimum disclosure expectations set out in the Transition Pathway Initiative 2018 report, and to have the plans peer-reviewed. They recommend these actions be backstopped by government requirements, copy on file with author.


\textsuperscript{189} Id.
failed to understand the risks of climate change to their business, and where these risks are considerable, have failed to convey these risks to shareholders. Barker and Winter note that “the law does not tolerate decisions based on uninformed assumptions, or that arise from a default from a failure to turn the directional mind to a relevant issue.” 190 They will also be liable if they utterly failed to implement a reporting and information system which is commensurate with corresponding risks to the business and legal obligations, or, if having implemented such a system, they consciously failed to monitor or oversee its operations, thus disabling themselves from being informed of risks or problems requiring their attention. 191 Both limbs of the test require a showing that directors knew they were not discharging their fiduciary obligations in order for liability to be imposed. 192 Barker notes that in relation to stranded assets, directors who consciously disregard or are willfully blind to stranded asset risks, for example through ‘default denialism’ consistent with industry-based or partisan political affiliations, may be subject to a claim that they failed to discharge their duty to prioritise the best interests of the company. 193 A changing balance of evidence from science suggests that a shift is occurring from climate change being merely an ethical concern, to a significant financial concern for carbon-major corporations and their investors, meaning directors are legally obligated to consider climate risks. 194 Directors would have direct and actual notice of climate risk as a result of regulatory investigations or litigation brought against their own company, and potentially by suits brought against other fossil fuel corporations. 195 While the Ramirez decision has just passed the pleadings stage, the case provides an important example of how existing fiduciary duties could require directors of public companies with securities duties to disclose information to shareholders about climate change and climate risk.

The rise of this second wave of litigation therefore increases the materiality of the risks of climate change to businesses and investors in

190 Id. at 46.
191 Stone v Ritter 911 A.2d 62 (Del. 2006) which involved the lack of implementation of a risk based system in relation to anti-money laundering legal obligations and knowledge by the directors that they were not complying with their fiduciary duties is a requirement, creating a high threshold for directors. This obligation will be more relevant where directors have legal obligations around emissions Note Bainbridge’s comments on the case supra note 156 (noting that the case gutted traditional understandings of the business judgment rule).
192 Id.
193 Barker, supra note 24, 211.
195 Barker, supra note 24, 212-213.
those businesses, and consequentially affects corporate governance. According to the *Omnicare* decision, directors will be at risk of breaching the duty of loyalty if they do not act appropriately with their shareholders, meaning they should inform their shareholders of the transition risks of climate change. Transition risks include increased regulation on climate change which may affect the bottom lines of these businesses. Increased disclosure by directors to investors of both the material financial risks of climate change as well as transition risks are also being demanded by investors independent of litigation. Directors are unlikely to be able to ward off shareholder proposals to include climate change in proxy materials, and the issue is likely to remain an agenda item at AGMs.

In April and May 2015, at the AGMs of both BP and Royal Dutch Shell, shareholder resolutions supported by a majority of shareholders as well as by management were passed. The shareholder resolutions requested enhanced reporting by these corporations on their exposure to climate change, including portfolio resistance to the International Energy Agency’s 2030 energy scenarios. They also requested further information on operational environmental management and public policy positions on climate change. The resolutions were submitted specifically in light of the Paris Agreement negotiations. The reasoning behind the shareholder resolution, as shared by “Aiming for A”, was to understand how these corporations were preparing for the low-carbon transition, reveal systemic risks that may impact investors, and to engage in more collective fiduciary duties and enhance shareholder voice on climate change.\(^{196}\)

In 2015 and 2016, similar resolutions requesting more action on climate change, including increased disclosure and the long-term portfolio impacts of climate change regulations and policies, were put forward at the AGMs of ExxonMobil and Chevron. The Exxon resolution was not accepted by the majority of shareholders. Shareholders did, however, pass a resolution that could enable them to appoint board members with expertise in climate change.\(^{197}\) In 2017, shareholders of Occidental Petroleum approved a shareholder proposal requiring that the company disclose the business impacts of climate change.\(^{198}\) This vote marks the first time that a climate-

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\(^{198}\) Emily Chasan, *Occidental Holders Override Board in Approving Climate Proposal* BLOOMBERG May 12, 2017.
related shareholder resolution was passed over the objections of the Board.\footnote{199}

A number of carbon-major corporations, including Exxon, in relation to the 2016 shareholder resolutions, applied to the SEC under Rule 14a-8(i)(3) requesting permission to exclude these proposals from proxy materials to be circulated to shareholders on the basis that they were vague or indefinite. The SEC in all cases disagreed, meaning that these corporations had to include the shareholder proposals in proxy materials, allowing all shareholders to vote on them.\footnote{200} Renssen notes that climate litigation has been given a “new lease on life” partly due to these shareholder actions targeting carbon-majors.\footnote{201}

\footnote{199} It is important to note that shareholder proposals on their own are not binding on the corporation.

\footnote{200} However, the SEC allowed the company to reject a shareholder submission requesting ExxonMobil to set emissions targets consistent with the Paris Agreement, Gary McWilliams, \textit{U.S. regulator rules out Exxon shareholder vote on climate resolution}, \textit{REUTERS} (April 2, 2019) \url{https://www.reuters.com/article/us-usa-exxon-mobil-climatechange/us-s-regulator-rules-out-exxon-shareholder-vote-on-climate-resolution-idUSKCN1RE2ES} (last visited Jul. 10, 2019).

\footnote{201} Renssen, \textit{supra} note 47, at 655. In 2010 the SEC issued guidance to investors regarding disclosures obligations in the context of climate change. The SEC guidance lists several disclosure obligations which may be relevant, including Securities Act Rule 408 and the Exchange Act Rule 12b-20 which requires registrants to disclose further material information as may be necessary to ensure that statements are not misleading. \textit{TSC v Northway}, 426 U.S. 438 (1976); as applied by \textit{Basic v Levinson}, 485 U.S. 244 (1988), deems a consideration to be material “if [there is a] substantial likelihood that a reasonable shareholder would consider it important in deciding how to vote.” While there has been very little action by the SEC in relation to its 2010 guidance, the legal requirement to disclose under the Securities Act 1933 15 U.S.C. § 77d-1(a),(4), (5) (2012) remains. This requires disclosure of material information which would ensure that the filing was not “misleading”, and the increasing number of extra-judicial resolutions submitted by shareholders against carbon major corporations requesting disclose of the risks of climate change may exemplify that climate change itself is now considered material by shareholders. In addition, Item 103 of Regulation S-K requires a registrant to briefly describe any material pending legal proceedings to which it or its subsidiaries may be a party to. Item 303 of Regulation S-K requires disclosure of Management’s Discussion and Analysis of Financial Conditions and Results of Operations (or MD&A) to enable investors to see the registrant entity from the perspective of management. This statement should identify known trends, events, demands and uncertainties that are reasonably likely to have a material effect on the financial condition or operating performance of the registrant. The SEC guidance notes that the time horizon is not specified for the MD&A analysis and will depend on the registrant’s particular circumstances. The risks factors assessed should include regulation, scientific and technological updates as well as physical risks of climate change, see SEC 2010, 17 CFR Parts 211, 231, 241, Commission Guidance Regarding Disclosure Related to Climate Change \url{https://www.sec.gov/rules/interp/2010/33-9106.pdf} (last visited February 26, 2019); Wallace \textit{supra} note 139 at 776 (noting that directors may determine that litigation risk is not material enough to disclose under Item 103 of
Fiduciary duties not only require directors to identify and assess climate risks, but can also provide tools for directors to consider and address the risks of climate change. Heminway notes that corporate law in the social enterprise context remains, at least in some states, a very flexible legal tool.\textsuperscript{202} She states that corporate law provides sufficient flexibility to directors in for-profit companies to consider what is best for shareholders in the long term, and can incorporate social enterprise approaches that consider shareholder wealth maximization.\textsuperscript{203}

\textit{E. Shareholder wealth maximization and climate risk}

The shareholder wealth maximization norm is often seen as a barrier to climate action, but in fact the norm is primarily focused on long-term profitability of the corporation. It is the most dominant norm undergirding U.S. corporate law, and fiduciary duties in particular.\textsuperscript{204} While not reflected in statutory obligations, its normative power is still considerable, and it has been deemed a “fundamental norm” guiding corporate decision making,

\begin{itemize}
  \item Regulation S-K assuming the litigation may not succeed due to causation hurdles, but that the MD&A disclosures may be a more potent tool for climate change disclosures, and that combined with political, economic and advocacy-driven public consciousness, federal securities law could be the main impetus for corporate action).
  \item Joan M. Heminway, \textit{Let’s Not Give Up on Traditional For-Profit Corporations for Sustainable Social Enterprise} 86 UMCK Law Rev. 779, 786 (2018).
  \item Id.
  \item There are a variety of theoretical normative approaches to the objective of the corporation. Shareholder primacy was originally based on shareholders as owners of the company, or alternatively according to agency theorists that shareholders own residual claims over corporate assets. The ownership theory has been supplanted by the nexus of contracts or contractarian theories, which evolved from Coasian transactional costs theories and generally characterise the corporation as a nexus or series of default contracts, and in particular as a species of private law. For a description of the varieties of theoretical approaches in the contractarian vein, see Stephen M. Bainbridge, \textit{Director Primacy: The Means and Ends of Corporate Governance} 97 NW U.L. REV. 547-606 (2002). For a critique of this approach to the corporation see William W. Bratton Jr., \textit{The New Economic Theory of the Firm: Critical Perspectives from History}, 41(6) STANFORD L REV. 1471-1527 (1989). Contractarian theories are not uncontested. Lipton and Rosenblum contest the private characterisation of corporations, pointing to their ties to the state and public welfare histories. In particular, they put forward an alternative model of the corporation as an entity, having its own independent interests in long-term business success. Marvin Lipton and Steven A. Rosenblum, \textit{A New System of Corporate Governance: The Quinquennial Election of Directors}, 58(1) UNIV. OF CHICAGO L. REV. 187, 189 and 202 (1991). Lynn Stout and Margaret Blair also put forward the team production theory where directors focus instead on key contributors which provide valuable inputs to the firm, see Margaret M. Blair and Lynn A. Stout, \textit{A Team Production Theory of Corporate Law} 85(2) VIRGINIA L REV. 248 (1999).
\end{itemize}
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particularly in Delaware. Fershee has noted that recent Delaware cases and judicial writings have elevated this norm to a more “singular and narrow obligation” for for-profit entities. Norms are powerful tools in corporate law. Corporate actors such as directors are often influenced by corporate culture and norm-based standards. So while often criticized, it is important to determine where synergies or complementarities between shareholder wealth maximization and climate risks to corporations can be found.

Contractarian theory characterizes the corporation as a nexus or series of private, default contracts or reciprocal arrangements between constituents who have a stake in its operations and profitability. As these contracts are

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205 Most corporate purpose statutory provisions are restricted and only refer to the corporation carrying out its activities for lawful purposes with no mention of shareholder wealth maximization. For example the Delaware General Corporate Code § 101(b) states that a corporation may be incorporated or organized under the Code to conduct or promote any lawful business or purpose. For more detail see Joan M. Heminway, Shareholder Wealth Maximization as a Function of Statutes, Decisional Law and Organic Documents 74(2) WASH & LEE L. REV. 939, 945 (2017). It is important to note that other states have incorporated constituency statutes which specially allow the board to use other stakeholder considerations a part of their decision-making process, for example §515(a) of the Pa. Consol. Statutes Title 15. The two main cases often cited to support the norm in Delaware corporate jurisprudence are Dodge v. Ford Motor Co., 170 N.W. 668, 684 (Mich. 1919) and also more recently eBay Domestic Holdings, Inc. v. Newmark, 16 A.3d 1, 34 (2010) where Chancellor Chandler states, “Having chosen a for-profit corporate form, the craigslist directors are bound by the fiduciary duties and standards that accompany that form. Those standards include acting to promote the value of the corporation for the benefit of its stockholders.”; Stephen M. Bainbridge, In Defense of the Shareholder Wealth Maximization Norm: A Reply to Professor Green, 50 WASH & LEE L. REV. 1423-1447, 1493 (1993), citing Dodge v Ford Motor Co 204 Mich. 459, 170 N.W. 668, A.P. Smith Manufacturing Co & Barlow 1953 3 N.J. 145, 98 A.2d 581 (N.J. 1953), and Revlon Inc. v McAndrews & Forbes 506 A.2d 173 (Del. 1986). Although there have been a number of critiques of this norm (see note 183 above), in particular D. Gordon Smith has called shareholder primacy one of the most overrated doctrines in corporate law, see The Shareholder Primacy Norm, 2 J. CORP L. 277 at 323 (1997) and Heminway notes that no decisional or statutory rule articulates a clear, legally enforceable shareholder wealth maximization norm as part of substantive corporate doctrine, supra note 184 at 955.

206 Joshua P. Fershee, The End of Responsible Growth and Governance? The Risks Posed by Social Enterprise Enabling Statutes and the Demise of Director Primacy 19 TENN. J. OF BUS. LAW, 362 (2018) (attributing this increased focus partly on the rise of social enterprise corporate forms but also to the general decline of director primacy towards a more intrusive interpretation of the business judgment rule by the courts in Delaware).


208 Melvin A. Eisenberg, The Conception That the Corporation is a Nexus of Contracts and the Dual Nature of the Firm, 24 J. CORP. L 819, 822 (1998-1999). There is some debate whether the corporation in this approach is itself the nexus of contracts or is
necessarily incomplete, fiduciary duties stand as “gap fillers,” available to courts where cracks or holes in these contracts between shareholders and corporate officers and directors appear.\footnote{209} The hypothetical bargain analysis asks what contractual terms rational parties would have agreed to had they addressed these gaps \textit{ex ante}, and the prevailing theoretical view is that they would have agreed to maximize shareholder value.\footnote{210} The purpose of fiduciary duties and the shareholder wealth maximization norm that guides their application, according to contractarians, is to focus the loyalty of directors towards shareholders.\footnote{211} Shareholders are reified and elevated in this characterization of the corporation through a hypothetical bargain analysis. Shareholder wealth maximization appears as the majoritarian default rule,\footnote{212} the governing principle that the majority of participants in this hypothetical bargain would choose.

According to many contractarians, the role of shareholder wealth maximization is to seek long-term shareholder value or gain.\footnote{213} However, Jensen describes the ultimate goal of the corporation in terms of firm and not shareholder value. He states that the value maximization norm means that corporate managers should make all decisions so as to increase the total long-run market value of the firm.\footnote{214} Allan et al. describe the aim of corporate law as being to achieve the best results for stockholders, based on the property model of the corporation that generates value for the entity in the long term.\footnote{215} Delaware law has embraced the property model of the


\footnote{211} Bainbridge supra note 200, at 1441.

\footnote{212} Id., at 583.

\footnote{213} Bainbridge supra note 199, at 573.

\footnote{214} Michael C. Jensen, \textit{Value Maximization, stakeholder theory and the corporate objective function}, 12(2) BUSINESS ETHICS QUARTERLY 235, 236 (2001) (defining the value of the firm as the sum of all financial claims on firms including equity, debt, warrants and preferred stock).

corporation as an entity, which still incorporates shareholder wealth maximization but in a form that emphasizes long-term wealth maximization.\textsuperscript{216}

Hansmann and Kraakman describe the primary aim of corporate law as striving to increase long-term shareholder value.\textsuperscript{217} However the definition of shareholder value is often unclear.\textsuperscript{218} Shareholders representing a shifting class of investors, some with long term and others with short term profit profiles. It is difficult for managers to determine the time and risk preferences of existing and future shareholders.\textsuperscript{219} As a result, directors may seek to maximize share price, but markets are not always efficient in terms of absorbing and assessing information.\textsuperscript{220} As Keay notes, the strong version of efficient market hypothesis states that the share price will automatically take into account all public and private information at any given time about the corporation, and the semi-strong version takes into account all public information.\textsuperscript{221} Therefore, while descriptions of shareholder wealth maximization often incorporate a long-term view, it application does not always (or even typically) clearly distinguish between shareholder value and share price, or provide guidance to directors on whether their focus should be on share value or overall firm value.\textsuperscript{222}

Reliance solely on share price depends on the efficient market hypothesis – that markets accurately, efficiently and timely absorb and assess all relevant information about the corporations. Stout describes this as the “achilles heel” of the hypothesis because it is not clear how

\textsuperscript{216} Id., at 1079. Allen notes that historically theories of wealth maximization have ‘papered over’ the conflict over the conceptual approaches of the corporation by invoking what he calls a murky distinction between long-term profit maximization and short-term profit maximization, William T. Allen, Our Schizophrenic Conception of the Business Corporation, 14 CARDOZO L. REV. 261, 271 (1992).

\textsuperscript{217} Hansmann and Kraakman, supra note 36, 440.

\textsuperscript{218} Heminway notes that value can often be a broader term than wealth maximization, with the latter often focusing solely on profit whereas shareholder can value a number of outputs in addition to profits, supra note 200, 971.

\textsuperscript{219} Henry T.C. Hu, Risk, Time and Fiduciary Principles in Corporate Investment 38 UCLA L. REV. 277, 287 (1990) (noting that directors must satisfy both widows and orphans seeking sure and immediate succor was well as cowboy capitalists); Mark E. Van Der Weide, Against Fiduciary Duties to Corporate Stakeholders, 21 DEL. J. CORP. L. 27, 37 (1996); Lisa M. Fairfax, Making the Corporation Safe for Shareholder Democracy, 69 OHIO ST. L. J. 53, 83 (2008); Stephen M. Bainbridge, Responses Director Primacy and Shareholder Disempowerment 119 HARV. L. REV. 1735, 1745 (2005).

\textsuperscript{220} Hu supra note 214, at 358.

\textsuperscript{221} Andrew Keay, Getting to Grips with Shareholder Value Theory in Corporate Law, 39 COMM L. WORLD REV. 358, 369-370 (2010) (questioning in the social context whether share prices are an appropriate proxy for societal values).

\textsuperscript{222} Hu, supra note 214, 295.
information flows into share price valuation. Market prices may not closely reflect actual expected risks and returns. Therefore use of share price alone as a decisional tool may encourage mismanagement of assets by directors in favor of short-term returns. Markets are not very good at assessing and taking into account long-term systemic risk. Information that is complex or difficult to acquire may take a long time to be absorbed into share price and may never be fully absorbed. This is particularly the case in the context of climate change and climate risk – businesses are generally not accurately accounting for and incorporating the significant, long-term risks of climate change to their business.

Despite the significant levels of risk facing corporations due to climate change, short-termism still persists with the reliance on efficient capital market theories that blur or dismiss the distinction between short-term and long-term interests. The impacts of climate change are already affecting companies in terms of increased operational costs, disrupted production, plant shutdowns, worker absences due to extreme events, as well as compromised assets. Because the impacts of climate change are only predicted to worsen in the coming decades, companies must shift from an incrementalist adaptation approach to transformational and long-term approaches to decision making and disclosures on climate risk and climate change.

223 Lynn Stout, The Mechanisms of Market Inefficiency: An Introduction to the New Finance 28. J. CORP. L. 635 (2002) (noting that informational efficiency is the speed at which prices respond to information but that this theory assumes a homo economicus model of human behaviour – that people are rational actors with stable preferences who promote their own welfare).

224 Id.


226 Posner supra note 220.

227 Carney, supra note 22; WEF and PwC, How to Set Up Effective Climate Governance on Corporate Boards: Guiding Principles and Questions (January 2019), 10 http://www3.weforum.org/docs/WEF_Creating_effective_climate_governance_on_corporate_boards.pdf (last visited Feb 20, 2019); Goldstein, supra note 130.


229 Goldstein et al. supra note 130.
change. This requires long-term thinking, and the ability to manage large time scales and complex information on climate change, and to adapt these into smaller pieces of information that can be absorbed into industry sectors and individual corporate strategies. Directors will need guidance and expertise to do this, and they must adopt long-term thinking.

While the shareholder wealth maximization norm is commonly interpreted as allowing directors to take a long-term view, systemic market forces that tend towards short-termism still have a powerful grip over the norm’s application, and this is where fiscal incentives, along with broader and deeper regulatory changes on corporate emissions are required. Despite these disincentives, fiduciary duties as currently interpreted are sufficiently flexible to allow directors to take into account the risks of climate change to their businesses, and take a longer term perspective on value creation that incorporates the risks and opportunities of energy transitions. In particular, fiduciary duties as guided by the shareholder wealth maximization norm at the very least require directors to be informed of and take into account the risks of climate change to their businesses. Barker notes that as climate risks have evolved to become an issue of financial import for many corporations, assessing climate risk is not only consistent with but is now a prerequisite to the maximization of wealth.

While increasing litigation on climate change has raised the profile of climate risk, and fiduciary duties provide sufficient flexibility to directors to assess and consider climate risk, several barriers still remain. One such barrier is the structure of corporate groups. Shareholders of companies enjoy limited liability, meaning that shareholders, absent certain circumstances, are not liable for debts incurred by the corporation in which they hold shares. These shareholders may themselves be corporations, called parent corporations, and together they form a corporate group. Limited liability is one of the hallmarks of corporate law, and only when courts decide to pierce the corporate veil will limited liability not apply to

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230 Id.
231 The Center for American Progress (CAP) recently petitioned the SEC to create a standard disclosure for environmental, social, and governance indicators. Signatories to the petition included investors managing over US$5 trillion worth of assets, including city and state retirement organizations, pension funds, academic institutions, and investment firms. Their petition is based on a CAP report that cites excessive short-termism as a key obstacle preventing shareholders and other stakeholders access to the long-term information they need to assess the long-term stability of their target investments in the context of climate change. The CAP report connects the detrimental effect of short-term profit making in the context of the shareholder wealth maximization norm to the issue of climate change, https://www.americanprogress.org/issues/economy/reports/2018/10/02/458891/corporate-long-termism-transparency-public-interest (last visited March 1, 2019).
232 Barker, supra note 24, 205.
parent companies. Climate litigation against subsidiary companies may encounter difficulties in attempting to fix liability on the parent companies due to the firmly entrenched system of segregating liability in to individual corporate entities within a corporate group structure. As a result, climate policies decided by the parent company and applied to subsidiary companies may not attract liability at the parent level.

_F. Corporate group structures – a barrier to climate liability?_

One area which has received less attention in this recent spate of cases is the role of the corporate group structure in terms of liability. In many of these cases the parent company has been the focus of liability. However large corporations often segregate jurisdictional activity into separate legal entities within a corporate group structure to purposefully disaggregate liability away from the parent company, even if the profits are issued via dividends up to it. Firms facing higher litigation risk often tend to have more subsidiaries.\(^{233}\) The separate liability of corporate actors within group structures has long been established in law.\(^{234}\) But liability can be overcome by courts piercing the corporate veil, imposing liability on parent companies for debts of their subsidiaries. Common law jurisdictions such as the United States and UK use similar tests for piercing the veil, such as the alter ego test, whether there has been complete domination by a parent company of a subsidiary company, whether the parent has abused the privilege of incorporation, as well as the single business enterprise doctrine.\(^{235}\)

A recent case in the UK illustrates how difficult piercing the veil can be in carbon-major group structure. The case of _HRH Emere Godwin Bebe Okpabi\(^ {236}\) _highlights the relevance of this doctrine in the context of climate change litigation. Here the claimants were seeking damages as a result of serious and ongoing pollution from leaks of oil from a pipeline in the Niger Delta from the parent company of the Royal Dutch Shell group. The local


\(^{234}\) See _Salomon v Salomon Co. Ltd_ [1896] UKHL 1, and more recently _Adams v Cape Industries plc_ [1990] Ch 433. The U.S. jurisdiction has also had a spate of cases which demonstrate that piercing the veil within corporate groups is difficult, _Walkovsky v Carlton_ 223 N.E.2d 6 (N.Y. 1966) and _Gardemal v Westin Hotel_ 186 F.3d 588 (5th Cir. 1999), although see _OTR Associates v IBC Services_ 353 N.J. Super. 48, 801 A.2d 407 (App. Div. 2002) (where fraud or deception is present, courts are more likely to pierce the veil).

\(^{235}\) This latter test is more prevalent in the United States, although see _Walkovsky v Carlton supra_ note 228. In the UK, despite vigorous attempts by Lord Denning to establish group liability through a single economic unit theory, subsequent cases since the 1970s have not used this approach.

\(^{236}\) [2018] EWCA Civ 191 [hereinafter HRH Emere].
subsidiary, Shell Petroleum Development Company of Nigeria Ltd (RDS) and its subsidiary SPDC were also respondents. The claimants claimed negligence under the common law of Nigeria which is the same as the common law test in the UK, and brought a suit in the English courts which was appealed to the Court of Appeal. The court considered the 3-part test of the duty of care as foreseeability, proximity, and reasonableness, and considered that a parent company could owe a duty of care to an employee of a subsidiary or a party directly affected by its operations in certain circumstances: where the parent has taken direct responsibility for devising a material health and safety policy and its adequacy is the subject of the claim, or the parent controls the operations which give rise to the claim.²³⁷

However, issuing mandatory policies was not sufficient, in the majority’s opinion, to demonstrate the sufficient nexus of control by the parent over the operations of the subsidiary. The policies in question were at a high level and none came close to establishing the sort of proximity necessary to establish a duty of care. There was, however, a strident dissent by LJ Sales who noted that RDS did put in place security, motivated by the negligent management of the pipeline by the subsidiary and the negative reputational damage this was causing the parent company.²³⁸ He felt that as RDS directed what steps SPDC should take, and joint decisions had been taken, this activity was enough to establish a direct and substantial relationship, and therefore a pattern of distribution of expertise and control, which was arguably capable of piercing the corporate veil and meeting the criteria in Chandler v Cape.²³⁹ The Vice Chancellor was less sanguine, stating bluntly that the corporate structure itself is specifically designed and therefore militates against, requisite proximity being met.²⁴⁰ However the Supreme Court in 2019 accepted jurisdiction to hear the appeal of another

²³⁷ Lungowe and others v Vendenta and KCM [2017] EWCA (Civ) 1528; see also Chandler v Cape Plc EWCA Civ 525 where liability was imposed on a parent company for responsibility for the health and safety of the subsidiary’s employees where the parent had employed a doctor whose specific function was to protect the employees, thereby establishing the requisite nexus of responsibility. In the Vendenta case, the issue of proximity was problematic for the court. The court was concerned about whether RDS was in control of the SPDC operations. Five elements of the relationship of proximity were examined: mandatory policies, standards and manuals on engineering design and practice, systems of supervision and oversight, financial control over SPDC, and a high level of direction and oversight of SPDC’s operations were exercised by RDS.

²³⁸ See HRH Emere, supra note 230, at 163–4.
²³⁹ Id.
²⁴⁰ Id., at ¶ 196.
case regarding a claim brought by 1,800 Zambian villagers against UK-based Vedanta and its Zambian subsidiary regarding waste discharges from a copper mine, specifically on the basis that group policies can in fact establish a sufficient nexus of control between parent and subsidiary.\textsuperscript{241}

These cases on liability by a parent in the group structure are relevant in the climate change context as most policies on climate change and emissions reductions are produced at the parent level, and the issuing of mandatory guidance is clearly established by this case as not providing a sufficient relationship of proximity. While a UK case, the outcome in relation to mandatory policies is similar to a U.S. case on piercing the corporate veil.\textsuperscript{242} In the \textit{Gardemal} case,\textsuperscript{243} a widow attempted to sue the U.S. parent company of Westin Hotels regarding the death of her husband while they were staying at a Mexican subsidiary of the hotel chain. The plaintiff attempted to rely on a number of circumstances including standard mandatory policies and practices shared within the group structure, as well as similar trademarks. These were specifically held to not be sufficient in establishing the single business enterprise ground of piercing the corporate veil.

While many states in the United States use a totality of circumstances test, and therefore each case is decided on its facts, the use of standard climate policies within a corporate group on its own, and without significant control exercised by the parent company, will likely not be sufficient to fix liability on the parent company.\textsuperscript{244} This means that litigation in jurisdictions where parent corporations are located may be cut short. Climate litigation against carbon-major corporations is therefore not likely to coalesce in the near future into a wave of successful suits against parent corporations, and therefore the impacts of litigation may be muted if parent corporations are not subject to any awards of damages.

\textbf{V. WHICH WAY FORWARD FOR DIRECTORS?}

Climate risks for corporations are increasing dramatically. Litigation is likely to only continue against carbon-major corporations, and new scientific processes will continue to advance understanding of these companies’ contributions to climate impacts, thereby increasing the

\textsuperscript{241} \textit{Vedanta Resources PLC v Lungowe and others} [2019] UKSC 20.

\textsuperscript{242} Tests for piercing the corporate veil are similar between UK and U.S. jurisprudence. While both jurisdictions state that the tests for piercing the corporate veil between parent and subsidiary companies are fact-specific, they often involve similar tests of abuse of the corporate form, using the corporation as an alter ego.

\textsuperscript{243} \textit{Gardemal v Westin Hotel} 186 F.3d 588 (St. Cir. 1999).

accuracy of litigation efforts. Climate litigation matters in an era of failing global governance, as it has the ability to connect different actors and governance scales.\textsuperscript{245} Climate change has been called a “multi-scalar” problem,\textsuperscript{246} as its governance is found among multiple levels of actors, at the local, regional, national and international levels. As interactions amongst these governance scales is often problematic, litigation can serve a unique governance function, as it “creates fluid pathways for interactions among regulation at subnational, national and international levels.”\textsuperscript{247} The role of litigation in transnational law is particularly pertinent for multinational entities such as carbon-major corporations, which have subsidiaries and/or operations in disparate jurisdictions. Multinational corporations are sensitive to regulatory changes and progressive judicial decisions in various jurisdictions due to their global footprints.

Climate change is posing tremendous risks to corporate assets globally. The impacts from climate change will put corporate assets at risk, including their infrastructure, consumer base, supply chains and therefore business models. Directors sit in the cross hairs of these emerging impacts, information and risks, and they must act. This section highlights the publicity risks of increased litigation, the links between litigation and directors’ decision-making, as well as some potential climate-based management strategies that could be adopted by directors in the face of mounting climate impacts and risks.

\textbf{A. Courtrooms as key battlegrounds}

Courtrooms have become key battle grounds in the public debate over climate change.\textsuperscript{248} As Blumm and Wood note, courts offer a deliberative fact-finding forum that can balance both scientific and political climate-related concerns.\textsuperscript{249} Corporatizing climate litigation therefore has expository value. It lays bare the previously secreted role of carbon-major corporations, and relates it to the human pain and suffering as well as financial costs caused by climate-induced extreme events. It also exposes the persistent refusal by the most regressive corporations to act in a societally-responsible manner. Many of these corporations have pursued a self-fulfilling prophesy; the absence of regulation would ensure that fossil fuels would be a good investment and that corporations would therefore maximize their profits to

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\item \textsuperscript{245} Preston, (Part 1), \textit{supra} note 29.
\item \textsuperscript{246} \textit{Id.}
\item \textsuperscript{247} Ososky & Peel, \textit{supra} note 29, at 53.
\item \textsuperscript{248} \textit{Id.}, at 1.
\item \textsuperscript{249} \textit{Id.} at 56.
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the detriment of the world.\textsuperscript{250} As Fromhoff, Heede and Oreskes note, “They are actively creating the future that they claim to accept the need to avoid.”\textsuperscript{251} The public narrative told in these cases is important, and provides a public forum for “an understanding of social and factual issues [to be] co-produced and settled.”\textsuperscript{252} The corollary of this understanding is the proposition that these corporations are also well placed in terms of their capacities in access to political power, wealth, technological advancement and expertise to lead the transition to clean, safer energy.\textsuperscript{253}

Having shed their previous reluctance to engage with climate science, judicial actors are now recognizing the important role that new scientific disciplines play in the arena of tort law. New scientific processes could also provide progressive judges with the opportunity to rethink older interpretations of legal and evidentiary thresholds around tort, burdens of proof and causation, as well as obligations under corporate law.\textsuperscript{254} This second wave of climate litigation demonstrates an evolving global conversation between courts, government actors, private victims, tortfeasors, directors and investors in the context of climate change.\textsuperscript{255} As the negative impacts of climate change increase, the global responses are likely to increase in corresponding fashion.

While political will in the United States may still be lacking at the federal level, state-based actions have gained traction.\textsuperscript{256} Federal resistance may also wane as the impacts of climate change become more severe and apparent, more information is forthcoming due to improved climate science and corporate disclosures, and carbon-majors begin to spend less opposing the science on climate change. State and local actions can also increase the costs of operating for carbon-majors through increased regulation and permitting processes, and enhanced incentives for clean energy. New

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  \item \textsuperscript{250}Frumhoff, Heede & Oreskes, \textit{supra} note 43, at 164.
  \item \textsuperscript{251}Id. at 166.
  \item \textsuperscript{252}See Fisher et al., \textit{supra} note 30 at 198.
  \item \textsuperscript{254}Ganguly \textit{supra} note 15, at 2.
  \item \textsuperscript{255}Weaver & Kysar, \textit{supra} note 29, at 36.
  \item \textsuperscript{256}Camila Domonoske, \textit{California sets goal of 100 percent clean electric power by 2045} NPR (Sept 10, 2018) \url{https://www.npr.org/2018/09/10/646373423/california-sets-goal-of-100-percent-renewable-electric-power-by-2045}, (last visited Nov 1 2018); Kirsten H. Engel and Barak Orbach, \textit{Micro-Motives for State and Local Climate Change Initiatives} 2 HARVARD LAW & POLICY REV. 119 (2008); Kristen H. Engel and Marc L. Miller, \textit{State Governance: Leadership on Climate Change}, Arizona Legal Studies Discussion Paper No. 07-37 (2009); see the We Are Still In movement at \url{https://www.wearestillin.com} (last visited Nov 1, 2018).
\end{itemize}
scientific processes give climate-focused political groups new tools to target these companies and increase public pressure on them. Anti-carbon-major movements may grow as a result, implicating directors and requiring that they respond to social-media based and other public campaigns.

As a public forum to highlight the importance of climate science, courts can also act as drivers of public and private sector action on climate change, even if the cases themselves are unsuccessful.257 As Ganguly et al. note, these cases could be “sublime failures”, achieving the aims of the litigants without achieving judicial success.258 The simple act of adjudicating climate change can help to shape the norms and beliefs of the broader public about the importance of climate change, and the contributory role and responsibilities of carbon-major companies.259 These cases highlight the importance of the evolving nature of climate risk, even if no damages or liability awards are ever made.

The public attention these cases garner should capture the attention of responsible directors, as these litigation trends may lead to shifting social and political contexts. While it is unclear what the causal relationship is between litigation and strengthened climate governance, enhanced regulatory obligations are certainly emerging.260 Common standards on disclosure are likely to become global industry norms, and therefore will affect the nature of what information directors should both consider and disclose to their shareholders.261 Disclosure obligations will put the issue of

257 See Marjanac et al., supra note 18, at 616.
258 Ganguly supra note 15, at 25. See also Wallace supra note 139 who notes that due to weaknesses in causation links, climate litigation is unlikely to be disclosed under Item 103 Regulation S-K as directors may determine that success in this litigation is unlikely so poses only a weak risk to financial circumstances.
260 See PRINCIPLES ON CLIMATE OBLIGATION OF ENTERPRISES, EXPERT GROUP ON CLIMATE OBLIGATIONS OF ENTERPRISES 1, 39 (2018).
261 The Task Force on Climate-Related Financial Disclosure has issued guidance to assist investors in assessing the transition plans of the companies in which they have invested, and potential changes in the value of underlying assets due to climate change. The Task Force’s first report identified barriers facing investors in relation to climate change, which included lack of coherent and consistent reporting on climate change by corporations, as well as weak corporate governance structures. See, Phase I Report of The Task Force on Climate Related Financial Disclosures, TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (Mar. 31, 2016) https://bit.ly/1oq67NV (last visited Jan 9, 2019). The work of the Task Force helped to disseminate knowledge around the bidirectional character of corporate climate risk – encouraging directors and investors to assess potential risks of climate change to their businesses. The final report highlighted the risks of climate change to global fiscal stability. While the impacts of climate change are both industry-specific and variable, the Task Force identified best practices in corporate disclosures on climate change, including seven broad principles for effective reporting, See TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES, https://www.fsb-tcfd.org (last visited Oct 9,
climate change directly on the agendas of AGMs, becoming an increasing concern for shareholders and therefore directors. The impacts of climate change is costly to corporations, and the bidirectional risk metrics of climate change should now necessarily inform directorial duties, significantly boosting the potential contribution of private law to resolving the climate crisis.

B. Connecting litigation with directors’ duties

Legal obligations for corporations in the context of climate change are already slowly transitioning towards greater liability. At the very least, the materiality and risk thresholds for disclosure and fiduciary considerations for directors are increasing. The Task Force on Climate-Related Financial Disclosure (or TCFD) has issued guidance to assist investors in assessing both the transition plans of the companies in which they have invested and potential changes in the value of underlying assets due to climate change. If investors perceive increased risks of climate change to companies, they are likely to push for increased disclosure by directors and continue to put pressure on directors to address these risks. Directors may also be under pressure to disclose private governance risks from their emissions, including reputational risks, supply chain risks, increased customer and investor demands and financial risks. Attorneys may also be at risk of ethics rules violations if their clients fail to disclose the risks of climate change.

As impacts and risks materialize more clearly, litigation is likely to only increase and take even more varied forms. Already industries such as the fishing industry have started suing carbon-majors for harm from climate change. Banks and international financial institutions are already moving away from financing fossil-fuel intensive activities and industries, and if financial institutions become the target of litigation, carbon-majors could

2018).
262 See PRINCIPLES ON CLIMATE OBLIGATION OF ENTERPRISES, EXPERT GROUP ON CLIMATE OBLIGATIONS OF ENTERPRISES 1, 39 (2018).
265 Pacific Coast Federation of Fishermen’s Associations Inc v Chevron Corp Inc, CGC-18-571285.
266 World Bank, World Bank Group Announcements at One Planet Summit, WORLD BANK PRESS RELEASE, Dec. 12 2017 (announcing the World Bank is to stop financing oil, gas projects from 2019 unless in exceptional circumstances in the poorest countries); NEW ECONOMICS FOUNDATION, European Central Bank to Consider Climate Impact, Jul. 10, 2018.
encounter difficulties finding finance for future activities. Litigation imposes both direct costs on companies of settlements and attorneys’ fees, but also indirect costs such as investor uncertainty about firm prospects, loss of customers, suppliers and prestige, and a diversion of management time and resources. Litigation can also affect credit ratings, the cost of debt and other financing costs. Litigation will progress as the threat of runaway climate change materializes more clearly, and courts are likely to step in to interpret the law in a way that meets society’s most urgent demands. However, it should be noted in the US context that President Trump’s most enduring legacy will be the appointment of conservative judges. These judicial appointments may provide a dampening effect on climate litigation trends and any successful district court cases may have a short shelf life.

Despite this judicial dampening potential, this Article argues that a shift is emerging in the context of litigation launched against carbon-major corporations, with judges engaging more closely with new climate science processes, litigants becoming more creative, and consequentially raising the public consciousness of climate change. This litigation shift is putting direct pressure on directors’ duties by highlighting the risks of climate change to corporations, and is likely to have several impacts. It will directly affect the procedural elements of directors’ duties, by raising the profile of climate risk, the role and contribution of carbon-major corporations to climate risk, and triggering a legal obligation to both consider and incorporate this information into their decision-making processes.

Litigation may also have more indirect effects, by influencing the content of directors’ decisions if directors take a long-term perspective. The open-textured nature of directors’ duties allows directors to react to evolving risks and industry norms. Directors are supposed to be informed and responsible actors, and the increased profile of climate change risk can no longer be ignored by directors of corporations which are highly vulnerable to climate risks.

Whether or not tort law adapts to climate change or these cases are successful, climate change triggers the application of fiduciary duties by the sheer scale of the risk it poses to businesses. In many instances, climate change is leading to an adaptation of legal orders and legal reasoning, and

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268 Id., 202.
269 PRINCIPLES, supra note 253 at 33.
271 PRINCIPLES supra note 141, at 196.
this will continue to be the case in the area of corporate law. While corporate law was historically insulated from environmental concerns, the risks of climate change are becoming so great that directors can no longer afford to ignore them, or not to pass on risk-based information to their shareholders. As a result, private law may contribute to better and more informed climate-decision making by directors and investors on climate change.

Short-term profit making has traditionally been the sole focus of many directors, and in this vein, directors may be reluctant to make long term transition decisions if short-term costs are incurred due to a short-term approach to shareholder wealth maximization. As a result, market forces may continue to exert adverse pressure on directors’ decision-making. But shareholder wealth maximization does not require a short-term approach, and directors should pay attention to climate change not just because of the increasing risks of climate litigation, but because it makes good long-term sense for their shareholders. Overcoming short-term thinking will be critical for directors to take action on climate change.

The corporate trend in climate litigation has other perhaps more indirect implications for directors. While concrete legal obligations for corporations may be in their infant stages, Flynn notes that, even if litigation suits are unsuccessful, they can persuade corporations to shift assets to more sustainable sources, put pressure on them to lobby legislatures to develop comprehensive climate change legislation, and also keep the issue of climate change alive in the public consciousness. Private law could ultimately lead directors to decide to divest assets away from fossil fuels and re-allocate assets into cleaner energy sources if they use tools available to them.

C. Climate-based management tools and strategies

While directors may feel overwhelmed by the complexity of climate change, there are existing steps they can and should take. They should use existing tools made available by the TCFD to assess the risks of climate change to their business, including direct and indirect risks. Directors


273 Beate Sjäåfjell, Beyond Climate Risk: Integrating Sustainability into the Duties of Corporate Boards, 23 Deakin Law Review 41 (2018) (noting that shareholder primacy and short-term maximisation of returns for shareholders constitute key barriers to boards addressing not only climate risk but also wider planetary boundary risks as well).

274 Flynn, supra note 56, at 862; Sjäåfjell supra note 264 (noting that the sheer scale of climate litigation regardless of their outcomes should make them a driver for change at the board level).
should acquire a more detailed understanding of the impacts of climate change to broader society in order to understand and assess systemic risks, indirect risks, impacts on social welfare and therefore on consumption patterns, and the risks of non-linear impacts of climate change. They should also assess climate-related opportunities.

Several factors impede directors from addressing climate-related risks and opportunities. These include competing risk priorities such as cybersecurity, the sheer complexity of climate change and its systemic nature, and short-term business cycles and risk assessments. While information and climate models are complex, industry guidance under the TCFD is providing more and more tools to directors and managers to incorporate climate change more appropriately to their business strategies. One of these tools is scenario analysis. This tool allows directors to create scenarios to predict the impact of climate change on their existing and future profitability models. Directors should adopt scenario analyses approaches and industry-specific guidance provided by the TCFD. While there will be temporal dissonances between the long time scales of climate change and the shorter profit horizons of corporations, scenario analysis provided by the TCFD can help directors to manage this dissonance, and craft corporate strategies to better cater for a variety of time scales which are relevant to their businesses. Climate impacts should no longer be considered as only long term risks - climate impacts are happening now, and directors should assess short, medium and long term impacts.

Directors should also gain a better understanding of the contributions of their businesses to climate impacts, and employ scenario analysis to assess their predicted emissions against global temperature goals. Carbon-major companies in particular should assess increasing litigation and other transition risks, including in the realm of securities and corporate law, as well as physical risks to their assets, including potentially stranded assets. These risks should be disclosed to investors, following TCFD guidelines.

In addition, the acquisition of knowledge cannot remain static as the science of climate change and assessment of its impacts is increasing in accuracy. Increasing disclosure requirements also mean that directors should implement appropriate reporting and information systems, which are kept up to date as the science and impacts of climate change improve and increase. Failure to monitor and disclose risks appropriately to shareholders would violate the duty of loyalty and also attract litigation from investors. Litigation claims are likely to arise when fiduciary actors fail to share and

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275 WEF & PwC, supra note 222, 10.
276 Lisa Benjamin and Stelios Andreadakis, Corporate governance and climate change: Smoothing temporal dissonance to a phased approach, BUSINESS LAW REVIEW (forthcoming, 2019).
disclosure relevant information and risks to shareholders, or fail to take adaptive actions based on their knowledge.\textsuperscript{277} Litigation aside, investors are increasingly expecting boards to be fluent with climate-related risks and opportunities.\textsuperscript{278}

Finally, directors should assess the profitability and feasibility of energy transitions away from fossil fuels. They should look at both mitigation and adaptation actions beyond incrementalist action, and consider transformational actions and the opportunities and reduction of risks they hold.

Directors of all corporations should become aware of the relevance of climate change to their businesses, and this may involve hiring expertise on the board to achieve this. As the impacts of climate change are only predicted to worsen in the coming decades, directors must have a clearer understanding of the specific risks from climate change to their businesses and investigate and prepare for transformational approaches to climate risk and climate change. This requires that directors take longer term perspectives but also a phased approach. In order to do this they need to develop the ability to manage and understand the large time scales and complex information on climate change. New research is emerging which clearly points to the business case for transition, even for carbon-major corporations. Directors should now be both fully aware of the risks climate change poses to their business, but also the opportunities available to them for cleaner, alternative energy production means. Directors will need guidance and expertise to do this, as well as long term thinking.

Fiduciary duties provide directors with sufficient flexibility to take on the challenge of climate change. However, barriers remain. While the second wave looks promising, corporate group structures could pose a further barrier to success against parent companies. If litigants and regulators cannot reach the parents companies, the scope of the second wave’s impact may be diminished. Short-term approaches also pose significant barriers to climate action. Even if this second wave of corporate climate litigation is largely unsuccessful, increased climate risk combined with shifting industry norms should lead responsible directors to both cater for and carefully consider the risks climate change poses to their businesses and shareholder interests.

Other regulatory changes and fiscal incentives are required, as corporate law alone cannot tackle the enormous challenges of climate change. But increased climate risks and impacts also increases public awareness, and is likely to spur on regulatory action. Directors should consider these shifts and the implications of them for their business. This

\textsuperscript{277} See Marjanac et al., supra note 18, at 616.
\textsuperscript{278} WEF & PwC, supra note 222, 10.
article concludes that while a variety of regulatory and fiscal developments are needed to provide a more comprehensive approach to climate change, existing fiduciary duties guided by shareholder wealth maximization norms provide sufficient flexibility for directors to tackle climate change.

CONCLUSION

We are approaching a climate crisis. The world is warming more rapidly than expected, and if emissions remain unabated we could be on course for a 4°C or higher levels of warming, and we have very little time to correct course.\textsuperscript{279} Crises can and do have impacts on corporate law. While corporate law remains largely a default set of rules and laws with few mandatory requirements on climate change, regulatory changes are often inspired by crises.\textsuperscript{280} Social and political regimes are reacting to the climate crisis. Regulatory and fiscal restraints on carbon are starting to emerge, and litigation against corporations on climate change is escalating, and only likely to increase in the future. While still in their infancy, these changes and movements could be seen as the beginning of the end of the fossil fuel economy, and could herald in the transition towards a lower-carbon economy.

Irrespective of the outcomes of existing cases, this new spate of corporate climate litigation serves a different and perhaps more lasting purpose – it highlights and publicizes the risks of climate change to directors, investors and the public. Directors must take into account increased climate risks when making business decisions. Existing litigation and regulatory efforts are by no means sufficient, and larger and broader fiscal instruments and regulatory policies will be needed to usher in a uniform and swift energy transition. At the same time, markets and therefore corporations are not accurately considering the risks of climate change, or of transitions away from fossil fuels. Directors have legal obligations under corporate law fiduciary duties to assess and consider escalating climate risks to their business, and should disclose these risks to shareholders where they are material. Fiduciary duties provide them with sufficient flexibility to take action on climate change in the long-term interests of their shareholders. Corporate law along with new industry

\textsuperscript{279} Intergovernmental Panel on Climate Change (2014), \textit{supra} note 1; Will Steffen et al., \textit{Trajectories of the Earth System in the Anthropocene} 33 PNAS 115 8252-8259 (2018); Institute for Public Policy Research, \textit{This is a Crisis: Facing Up to the Age of Environmental Breakdown}, February 2019 \url{https://www.ippr.org/research/publications/age-of-environmental-breakdown} (last visited Feb 20, 2019).

guidance and tools can provide directors with the strategies they require to harness the power of corporations to address the climate crisis. Let’s hope directors take advantage of these tools before it is too late.

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