DISCLOSURE OF PRIVATE CLIMATE TRANSITION RISKS

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ABSTRACT

This Article identifies a gap in the securities disclosure regime for climate change and demonstrates how filling the gap can improve financial disclosures and accelerate climate change mitigation. Private climate initiatives have proliferated in the last decade. Often led by advocacy groups, these private initiatives have used naming and shaming campaigns and other means to induce investors, lenders, insurers, retail customers, supply chain customers, and employees to pressure firms to engage in climate change mitigation. Based on an empirical assessment of the annual reports filed with the Securities and Exchange Commission (SEC) by Fortune 100 firms and the

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largest firms in several fossil fuel-heavy sectors, this Article concludes that roughly a third of these firms disclose the risks and opportunities posed by private environmental governance (PEG) initiatives. The assessment also finds, however, that disclosures vary substantially among similar firms and among similar sectors. The Article argues that this heterogeneity in disclosure is not surprising given that the SEC's 2010 climate guidance and other disclosure regimes do not call sufficient attention to PEG climate initiatives, and many lawyers think of environmental risks as synonymous with governmental regulatory risks. The legal literature on climate transition risk focuses principally on whether regulatory and market-based risks should be disclosed, but it overlooks the importance of the material risks posed by PEG climate initiatives. PEG climate initiatives pose a discrete form of climate transition risk for many firms, and revisions to the SEC guidance and other disclosure regimes to account for PEG climate initiatives can be adopted more quickly, produce more complete financial disclosures, and yield greater and more durable emissions reductions than many other approaches.

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INTRODUCTION

Inconsistencies abound in corporate disclosures of the risks and opportunities arising from private climate governance actions. In the most recent annual reports filed with the Securities and Exchange Commission (SEC), the five largest coal companies disclosed that investors and lenders are responding to climate change by creating pressure to reduce the use of coal, but none of the largest electric utilities—the largest users of coal—included similar disclosures.[1] Likewise, in its most recent annual report, PepsiCo discussed the "increased focus, including by governmental and non-governmental organizations, investors, customers and consumers on ... environmental sustainability matters, including deforestation, land use, [and] climate impact," and disclosed the risk posed by "any failure to achieve our goals with respect to reducing our impact on the environment or perception (whether or not valid) of our failure to act responsibly with respect to the environment."[2] A principal competitor, The Coca-Cola Company, did not include a similar disclosure.[3]

Similarly, Alphabet, the parent company of Google, disclosed that it has made major climate commitments, including matching 100 percent of its electrical consumption with renewable power purchases, but Facebook, which has taken similar steps, did not.[4] General Motors described a corporate commitment to procure 100 percent renewable power, but Ford did not.[5] American International

1. *See infra* Part I.B.2.

2. PepsiCo, Inc., Annual Report (Form 10-K), at 30 (Feb. 13, 2020), https://www.sec.gov/Archives/edgar/data/77476/000007747620000015/pepsico201910-k.htm [https://perma.cc/R5VV-URF3].

3. *See generally* Coca-Cola Co., Annual Report (Form 10-K) (Feb. 24, 2020), https://www.sec.gov/Archives/edgar/data/0000021344/000002134420000006/a2019123110-k.htm [https://perma.cc/2HPG-BMX8].

4. *Compare* Alphabet, Inc., Annual Report (Form 10-K), at 8 (Feb. 3, 2020), https://www.sec.gov/Archives/edgar/data/0001652044/000165204420000008/goog10-k2019.htm [https://perma.cc/8W8U-B9L9], *with* Facebook, Inc., Annual Report (Form 10-K) (Jan. 29, 2020), https://www.sec.gov/Archives/edgar/data/1326801/000132680120000013/fb-12312019x10k.htm [https://perma.cc/DZ7P-U96Q].

5. *Compare* General Motors Co., Annual Report (Form 10-K), at 7 (Feb. 5, 2020), https://www.sec.gov/Archives/edgar/data/0001467858/000146785820000028/gm201910k.htm [https://perma.cc/5M4G-LL3Y], *with* Ford Motor Co., Annual Report (Form 10-K) (Feb. 5,

Group, a major insurer, disclosed that "our reputation or corporate brand could be negatively impacted as a result of changing customer or societal perceptions of organizations that we either insure or invest in due to their actions (or lack thereof) with respect to climate change," but none of the other large insurance companies that file annual reports with the SEC included a similar disclosure.[6] JPMorgan Chase stated that:

> Social and environmental activists are increasingly targeting financial services firms such as JPMorgan Chase with public criticism for their relationships with clients that are engaged in certain sensitive industries, including businesses whose products are or are perceived to be harmful to human health, or whose activities negatively affect or are perceived to negatively affect the environment, workers' rights or communities.[7]

Bank of America also noted the risk of reputational harm arising from the "perception of [its] environmental, social and governance practices and disclosures."[8] Wells Fargo, Capital One Financial, and other large banks are subject to these same types of risks, yet their annual reports did not disclose them.[9]

Do these inconsistent disclosures reflect differences in the financial risks posed to these firms by climate change or differences in disclosure practices about the growing private pressure on firms to reduce greenhouse gas (GHG) emissions? This Article presents the results of an empirical study of corporate environmental and climate disclosures and argues that these are not just anecdotal

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2020), https://www.sec.gov/Archives/edgar/data/0000037996/000003799620000010/f12312019 10-k.htm [https://perma.cc/G9DP-3Z2U].

6. *Compare* Am. Int'l Grp., Inc., Annual Report (Form 10-K), at 21 (Feb. 21, 2020), https://www.sec.gov/Archives/edgar/data/5272/000110465920023889/aig-20191231.htm [https://perma.cc/VP58-PYK8], *with infra* Part I.B.2.

7. JPMorgan Chase & Co., Annual Report (Form 10-K), at 25 (Feb. 25, 2020), https://www.sec.gov/Archives/edgar/data/0000019617/000001961720000257/corp10k2019.htm [https://perma.cc/5UUE-W7H5].

8. Bank of Am. Corp., Annual Report (Form 10-K), at 16 (Feb. 19, 2020), https://www.sec.gov/Archives/edgar/data/0000070858/000007085820000011/bac-1231201910xk.htm [https://perma.cc/RG7X-52TW].

9. *See, e.g.*, Wells Fargo & Co., Annual Report (Form 10-K) (Feb. 26, 2020), https://www.sec.gov/Archives/edgar/data/72971/000007297120000217/wfc-12312019x10k.htm [https://perma.cc/LS9B-UMZD]; Capital One Fin. Corp., Annual Report (Form 10-K) (Feb. 20, 2020), https://investor.capitalone.com/node/42616/html [https://perma.cc/SJ5U-6APY].

differences or differences in the financial condition of the firms. Instead, they reflect limitations in the securities disclosure regulatory regime and limitations in the conceptual model of governance that shapes the thinking of the lawyers, accountants, business managers, and policymakers who manage the disclosure process. Based on this analysis, the Article proposes viable changes to the securities disclosure regime to improve the information available to investors and accelerate climate change mitigation.

A vigorous academic and policy debate is underway about the disclosure of climate risks. On one track, the debate concerns whether climate risks merit disclosure by publicly traded firms even if they are not material as that term is interpreted by the SEC and courts. Scholars such as Cynthia Williams[10] and Jill Fisch,[11] along with many others,[12] have argued that disclosure of environmental issues merits a departure from the focus on reporting of material financial risks that has been dominant for ninety years.[13] I share this view.

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10. *See* Cynthia A. Williams, *The Securities and Exchange Commission and Corporate Social Transparency*, 112 HARV. L. REV. 1197, 1201-02, 1299 (1999) (arguing for a new standard for environmental and other social issues).

11. *See* Jill E. Fisch, *Making Sustainability Disclosure Sustainable*, 107 GEO. L.J. 923, 950-51 (2019) (arguing that materiality is a principles-based requirement that does not stabilize the types of disclosures from companies facing climate risks and proposing new SEC requirements to address sustainability disclosure and analysis).

12. *See, e.g.*, Daniel C. Esty & Quentin Karpilow, *Harnessing Investor Interest in Sustainability: The Next Frontier in Environmental Information Regulation*, 36 YALE J. ON REGUL. 625, 690 (2019) (suggesting a mandatory environmental, social, and governance (ESG) reporting requirement); Virginia Harper Ho & Stephen Kim Park, *ESG Disclosure in Comparative Perspective: Optimizing Private Ordering in Public Reporting*, 41 U. PA. J. INT'L L. 249, 256 (2019) (noting the value of hybrid public-private ESG disclosure); Melissa K. Scanlan, *Climate Risk Is Investment Risk*, 36 J. ENV'T L. & LITIG. 1, 15 (2021); Thomas Clarke, *The Widening Scope of Directors' Duties: The Increasing Impact of Corporate Social and Environmental Responsibility*, 39 SEATTLE U. L. REV. 531, 531 (2016) (proposing expansion of directors' duties); Adam Sulkowski & Sandra Waddock, *Beyond Sustainability Reporting: Integrated Reporting Is Practiced, Required, and More Would Be Better*, 10 U. ST. THOMAS. L.J. 1060, 1061 (2013) ("Thousands of companies around the world, including 95 percent of the Global Fortune 250, voluntarily report on their environmental, societal, and economic impacts."). *But see* Margaret E. Peloso, *An Approach for Investors, Companies,* ENV'T F., Nov./Dec. 2020, at 27, 27 (recommending a focus on firm resilience); Max M. Schanzenbach & Robert H. Sitkoff, *Reconciling Fiduciary Duty and Social Conscience: The Law and Economics of ESG Investing by a Trustee,* 72 STAN. L. REV. 381, 386 (2020) (arguing trust fiduciary duty requirements allow trustees to account for ESG issues only in limited circumstances).

13. *Cf.* Gary Gensler, Chair, U.S. Sec. & Exch. Comm'n, Statement Before the Financial Stability Oversight Council (Oct. 21, 2021), https://www.sec.gov/news/public-statement/gensler-statement-financial-stability-oversight-council-102121 [https://perma.cc/8VS4-7R8K].

Climate change is one of the greatest threats to modern society,[14] so if disclosure of climate information will drive carbon emissions reductions, even if additional disclosure is somewhat costly and causes some muddying of the security regulatory regime's focus on financial materiality,[15] a departure is warranted. Even with pressure from the Biden administration and more supportive appointments to federal agencies and commissions, however, efforts to depart from the focus on financial materiality through changes to statutes, regulations, policies, and litigation will face high hurdles.[16]

On a different track, the climate disclosure debate focuses not on whether the financial materiality standard should be modified or supplemented, but whether companies are failing to disclose two types of climate risks even if they are material to a reasonable investor.[17] The first is often called *physical risk*, which is the risk that climate change itself—rising sea levels, increased severity of storms, heat waves, and forest fires, and the human responses to them such as crop failures, migration, and social unrest—will have material adverse financial effects.[18] The second is often called *transition risk*, the risk that climate mitigation measures will adversely affect a firm's financial position;[19] although given the SEC's focus on and the risks posed by government regulation and traditional forms of market risk by the SEC and other government entities, transition risk might more accurately be called *regulatory or market risk*. In 2010, the SEC issued guidance on disclosure of climate change risks

14. Press Release, Security Council, Climate Change 'Biggest Threat Modern Humans Have Ever Faced', World-Renowned Naturalist Tells Security Council, Calls for Greater Global Cooperation, U.N. Press Release SC/14445 (Feb. 23, 2021).

15. *See* ALEXANDRA THORNTON & TYLER GELLASCH, CTR. FOR AM. PROGRESS, THE SEC HAS BROAD AUTHORITY TO REQUIRE CLIMATE AND OTHER ESG DISCLOSURES 1, 3, 7, 15 (2021) (discussing backlash to the SEC's recent request for comments on "enhanced climate-related and 'human capital management' disclosures").

16. *See generally id.*

17. *See* Fisch, *supra* note 11, at 955-56.

18. JONATHAN WOETZEL, DICKON PINNER, HAMID SAMANDARI, HAUKE ENGEL, MEKALA KRISHNAN, BRODIE BOLAND & CARTER POWIS, MCKINSEY GLOB. INST., CLIMATE RISK AND RESPONSE: PHYSICAL HAZARDS AND SOCIOECONOMIC IMPACTS viii, 10, 15, 47 (2020). For instance, this report concluded that by the 2040s in some parts of the U.S. Southeast, the likelihood of a once-in-a-century hurricane is likely to double and that it may triple in certain areas in Southeast Asia. *Id.* at 10.

19. Kezia Farnham, *What Is Transition Risk and How Can Today's Organizations Tackle It?*, DILIGENT (July 7, 2021), https://www.diligent.com/insights/esg/transition-risk/ [https://perma.cc/77CB-9TN6].

(the "2010 Guidance"), which follows the traditional thinking on this issue: it focuses on the material effects of physical and transition risks, the two conventional conceptions of climate change risk.[20] More recently, leading scholars,[21] the U.S. Commodity Futures Trading Commission (CFTC),[22] the Federal Reserve,[23] and major global private and public-private hybrid initiatives such as the Task Force on Climate-related Financial Disclosure (TCFD)[24] and the Sustainability Accounting Standards Board (SASB),[25] have also focused principally on the development of standards and methods to increase the disclosure of these two types of climate risks.

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20. Commission Guidance Regarding Disclosure Related to Climate Change, 75 Fed. Reg. 6,290 (Feb. 8, 2010) [hereinafter SEC 2010 Guidance].

21. *See, e.g.*, Esty & Karpillow, *supra* note 12, at 690 (discussing climate risk in the context of a proposal for mandatory disclosure); Lisa Benjamin, *The Road to Paris Runs Through Delaware: Climate Litigation and Directors' Duties*, 2020 UTAH L. REV. 313, 381 (discussing directors' duties regarding climate issues); Markus Kitzmueller & Jay Shimshack, *Economic Perspectives on Corporate Social Responsibility*, 50 J. ECON. LITERATURE 51, 53-54 (2012) (discussing firms' motivations for engaging in socially responsible activities).

22. CLIMATE-RELATED MARKET RISK SUBCOMM., U.S. COMMODITY FUTURES TRADING COMM., MANAGING CLIMATE RISK IN THE U.S. FINANCIAL SYSTEM 2 [hereinafter CFTC Report], https://www.cftc.gov/sites/default/files/2020-09/9-9-20%20Report%20of%20the%20Subcommittee%20on%20Climate-Related%20Market%20Risk%20-%20Managing%20Climate%20Risk%20in%20the%20U.S.%20Financial%20System%20for%20posting.pdf [https://perma.cc/TZD7-JE5Z] ("A world wracked by frequent and devastating shocks from climate change cannot sustain the fundamental conditions supporting our financial system."); *see also Market Risk Advisory Committee*, U.S. COMMODITY FUTURES TRADING COMM., https://www.cftc.gov/About/AdvisoryCommittees/MRAC [https://perma.cc/Y6XK-8KFN].

23. *See* BD. OF GOVERNORS OF THE FED. RSRV. SYS., FINANCIAL STABILITY REPORT 58 (Nov. 2020) [hereinafter Federal Reserve Report], https://www.federalreserve.gov/publications/files/financial-stability-report-20201109.pdf [https://perma.cc/CF5G-3ZWE] ("Opacity of exposures and heterogeneous beliefs of market participants about exposures to climate risks can lead to mispricing of assets and the risk of downward price shocks."). The Financial Stability Oversight Council, a Treasury Department-led body created in the wake of the 2008 crisis, has incorporated climate risks into its annual report and has suggested that the Federal Reserve and other major financial regulators join international coalitions that focus on climate threats. *See generally id.*; *About FSOC*, U.S. DEP'T OF THE TREASURY, https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/fsoc/about-fsoc [https://perma.cc/66S9-QURB].

24. *See* FINAL REPORT: RECOMMENDATIONS OF THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES 41 (2017) [hereinafter TCFD 2017 Report], https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf [https://perma.cc/69G5-B9AX].

25. *See* SUSTAINABILITY ACCT. STANDARDS BD., SASB CONCEPTUAL FRAMEWORK 2-3 (2017) [hereinafter SASB 2017 Framework], https://www.sasb.org/wp-content/uploads/2020/02/SASB_Conceptual-Framework_WATERMARK.pdf [https://perma.cc/E75E-K2TX].

This Article takes a different approach. It argues that the two current tracks pursued by scholars, policymakers, and advocates, which focus principally on relaxing or bypassing the materiality standard, or on better identifying physical climate risk and regulatory or market transition climate risk, are important but overlook a more viable opportunity: disclosure of the transition risks posed by the newly emerging phenomenon of private environmental governance (PEG).[26] For instance, when a company commits to reducing the carbon emissions from its supply chain and imposes reduction targets in supply chain contracts, high-carbon suppliers can lose important markets for their products. This is a climate transition risk, but it is not a government regulatory risk, and it is not simply a market risk. It is a risk that emerges because the buying company is playing a private regulatory role with its suppliers even if governments are not requiring it to do so. PEG initiatives take many forms, but they all share the common feature of non-governmental actors (including corporations, investors, lenders, insurers, advocacy groups, and other private sector actors) performing traditionally governmental functions such as reducing negative externalities (in this case carbon emissions) or managing common pool resources or public goods (in this case, the ability of the atmosphere to maintain a stable climate).[27] PEG climate initiatives can induce firms to reduce carbon emissions even absent government climate mitigation requirements, and in some cases they overcome government opposition to climate mitigation.[28] They present a discrete new type of transition risk that does not fit neatly into physical, regulatory, or market risks and that has grown substantially since the development of the 2010 Guidance.[29] The emerging

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26. *See infra* Part I.A.

27. *See, e.g.*, Sarah E. Light, *The Law of the Corporation as Environmental Law*, 71 STAN. L. REV. 137, 140-41 (2019); Sarah E. Light & Eric W. Orts, *Parallels in Public and Private Environmental Governance*, 5 MICH. J. ENV'T & ADMIN. L. 1, 4, 8-9 (2015); Michael P. Vandenbergh, *Private Environmental Governance*, 99 CORNELL L. REV. 129, 146 (2013); Sarah C. Haan, *Shareholder Proposal Settlements and the Private Ordering of Public Elections*, 126 YALE L.J. 262, 286 (2016) (framing settlement agreements in shareholder proposals as a mechanism for private ordering in campaign finance and environmental proposals).

28. *See* Vandenbergh, *supra* note 27, at 136-38.

29. *See supra* note 20 and accompanying text. As Alan Palmiter has noted, PEG activities in the form of ESG actions by corporations reached an inflection point in roughly 2012, and the activity since then has been remarkable. Alan R. Palmiter, Capitalism, Heal Thyself 4

importance of environmental, social, and governance (ESG) issues and growth in PEG climate initiatives has also occurred largely under the radar screen of much of the legal scholarship on climate risk disclosure.[30]

As the examples at the outset suggest, a wide range of PEG climate initiatives pose potentially material transition risks, including advocacy group pressure on firms to disclose or reduce emissions,[31] naming and shaming campaigns directed at managers, employees, or retail customers,[32] and divestiture or investor engagement campaigns directed at institutional investment firms, lenders, and insurers.[33] PEG climate transition risks also arise from the knock-on effects of this direct pressure, including adoption of public commitments by corporations, investment firms and pension funds, lenders, and insurers.[34] Perhaps most importantly, PEG climate transition risks also include the risks that arise from the transfer of this emissions reduction pressure to borrowers, equity issuers, suppliers, and utilities.[35] For instance, Walmart has worked with several environmental advocacy groups to develop Project Gigaton, through which Walmart has committed to reducing the GHG emissions from its suppliers by a billion tons by 2030, an amount roughly equal to the

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(Nov. 25, 2021) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstrct_id=3940395 ("Something happened in about 2012, and there's no indication it's going to end soon. In fact, there's every reason to believe that nearly all [assets under management] globally will soon have some form of ESG flavor—whether ESG-incorporated, ESG-focused, ESG-activist, or ESG-impact investing. At current exponential growth rates, this should happen in 2022, latest 2023. And then the ESG flavors will only become more and more intense.").

30. *See* Louis G. Leonard III, *Under the Radar: A Coherent System of Climate Governance, Driven by Business*, 50 ENV'T L. REP. 10546, 10546-47, 10568 (2020) (providing analysis by former head of energy and climate programs from World Wildlife Fund regarding importance of PEG climate initiatives and noting these initiatives present financial risks and opportunities); David G. Victor, *Faced with Government Inaction, Private Firms Emerge as Major Players in Climate Change Mitigation*, SCI. (Dec. 18, 2017), https://web.archive.org/web/20171222153710/http://blogs.sciencemag.org/books/2017/12/18/beyond-politics/ [https://perma.cc/C7KT-F9CJ] (noting the growing importance of private sector action regarding climate change).

31. *See supra* notes 2-8 and accompanying text.

32. *See* Leonard, *supra* note 30, at 10552-55.

33. *See* Michael P. Vandenbergh & Jonathan A. Gilligan, *Beyond Gridlock*, 40 COLUM. J. ENV'T L. 217, 253, 264-66 (2015).

34. Haley Wiebel, Kevin Moss & Emily Neagle, *From Pledges to Action: What's Next for COP26 Corporate Commitments*, WORLD RES. INST. (Nov. 22, 2021), https://www.wri.org/insights/pledges-action-whats-next-cop26-corporate-commitments [https://perma.cc/Z8WW-57XZ].

35. *See* Leonard, *supra* note 30, at 10552-55.

annual emissions of Germany or Japan.[36] Any major supplier selling to Walmart can thus expect GHG reduction pressure not just from governments, but from Walmart.[37]

These private initiatives are motivated by a complex set of drivers: financial gains from efficiency; employee norms; corporate and retail customer pressure; reputation or brand concerns; investor, lender, and insurer pressure; and others.[38] Anticipation of future government regulatory pressure plays an important role in some cases, but it cannot explain the growth of PEG climate initiatives that occurred during the Trump administration and in countries and states where governments have resisted climate change mitigation.[39] An example is the We Are Still In initiative, which was organized by the World Wildlife Fund (WWF) and other advocacy groups and included not only cities and states, but also hundreds of companies, all committing to support the goals of the Paris Agreement after the Trump administration announced its intention to withdraw.[40] Although the focus of the academic literature, disclosure regimes, and this Article is on the adverse effects of climate change, PEG climate initiatives can also create opportunities that may be just as important to a reasonable investor as the risks. For instance, although a supply chain contracting requirement for low-GHG goods may disadvantage some suppliers, it may advantage others.[41]

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36. *See Project Gigaton*, WALMART SUSTAINABILITY HUB, https://www.walmartsustainabilityhub.com/project-gigaton [https://perma.cc/W55P-D4C7]; Jim Witkin, *Inside Walmart's Lofty Project Gigaton: Supply Chain Engagement for Cutting Emissions*, TRIPLE PUNDIT (May 11, 2018), https://www.triplepundit.com/story/2018/inside-walmarts-lofty-project-gigaton-supply-chain-engagement-cutting-emissions/12371 [https://perma.cc/9ZDH-3T5K].

37. *See Project Gigaton*, *supra* note 36.

38. *See generally* MICHAEL P. VANDENBERGH & JONATHAN M. GILLIGAN, BEYOND POLITICS: THE PRIVATE GOVERNANCE RESPONSE TO CLIMATE CHANGE (2017); Kitzmueller & Shimshack, *supra* note 21, at 62-70.

39. *See* Vandenbergh, *supra* note 27, at 131-32, 136-37.

40. *See* Leonard, *supra* note 30, at 10559.

41. *See* Edward Klump, Kristi E. Swartz & Arianna Skibell, *CEOs Outline 3 Trends Hitting Electricity*, GOVERNORS' WIND & SOLAR ENERGY COAL. (Nov. 16, 2020), https://governorswindenergycoalition.org/ceos-outline-3-trends-hitting-electricity/ [https://perma.cc/M66L-33XJ] (quoting John Ketchum, CEO of the competitive wholesale unit NextEra, for the proposition that "pressure that formally nontraditional buyers of renewables are facing from their investor base has really expanded the opportunity for us").

To assess the status of firm disclosure of PEG climate transition risks, this Article reports on an examination of the most recent annual reports (often referred to as "10-Ks") of the Fortune 100 companies, plus the five largest coal companies (by market share in production), the five largest petroleum refining companies (by revenue), and the five largest utility companies (also by revenue).[42] The results indicate that many firms recognize the material risks posed by PEG climate initiatives: more than one-third of the Fortune 100 firms disclosed PEG climate transition risks when discussing matters that may be material to a reasonable investor.[43]

The disclosures discussed at the outset provide examples, such as the JPMorgan Chase statement that "[s]ocial and environmental activists are increasingly targeting financial services firms" based on the environmental effects of their lending practices.[44] Not surprisingly, these disclosures are most common among fossil fuel-heavy industries. A major coal company disclosed PEG climate transition risks by noting the threat posed by "unfavorable lending policies by lending institutions and divestment efforts affecting the investment community."[45] Although the coal firm's filing did not specify the types of lender policies or divestment efforts that posed material risks, as the JPMorgan disclosure suggests some lenders have responded to advocacy group pressure by adopting policies that disfavor lending to fossil-fuel heavy projects and companies.[46] Other private initiatives have pressured investors to divest from fossil fuel-heavy stocks or have encouraged investors to pressure companies to transition away from reliance on coal and other fossil fuels.[47]

This Article demonstrates that the disclosure of PEG climate transition risks varies substantially among firms and rarely fully explores the extent of the financial risk and opportunity presented

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42. *See infra* Part I.B.1.

43. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, https://vanderbilt.app.box.com/s/5s846eodlwwvbe4zk3py7qgln379rtt9 [https://perma.cc/PUZ8-UC4K].

44. JPMorgan Chase & Co., 2019 Form 10-K, *supra* note 7, at 25.

45. All. Res. Partners, L.P., Annual Report (Form 10-K), at 34 (Feb. 20, 2020), https://www.sec.gov/Archives/edgar/data/1086600/000155837020001103/arlp-20191231x10kbc62ed.htm [https://perma.cc/TT4E-PY63].

46. *See infra* Part I.A.

47. *See infra* Part I.A.

by PEG climate initiatives. Many annual reports of similarly situated firms say nothing about the transition risks arising from PEG climate initiatives.[48] An example of a transition risk disclosure that focused almost exclusively on traditional government regulatory risks was filed by Marathon Petroleum Corporation, which stated that "[m]eeting the requirements of evolving environmental or other laws or regulations may reduce our refining and marketing margin and may result in substantial capital expenditures and operating costs that could materially and adversely affect our business, financial condition, results of operations and cash flows."[49] In addition, disclosure in annual reports is not only uneven among the firms in the Fortune 100: it is uneven among firms within the same sector and between sectors.[50] Bank of America disclosed the risks presented by reputational harm from the "perception of [its] environmental, social and governance practices and disclosures," yet Wells Fargo and Capital One Financial are subject to these types of risks, but did not disclose them.[51]

Although the heterogeneity in disclosures may simply be the product of differences in firm economics (for example, differences in materiality thresholds), differing disclosure practices provide a more plausible answer. The 2010 Guidance, other disclosure regimes, and the training of many public- and private-sector lawyers, accountants, business managers, and policymakers who manage disclosure all focus on the physical and transition risk buckets for climate change and appear to treat transition risks as largely synonymous with government regulatory risks or traditional market risks.[52] Although the 2010 Guidance addresses transition risks, its specific

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48. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.

49. Marathon Petroleum Corp., Annual Report (Form 10-K), at 32 (Feb. 28, 2020), https://www.sec.gov/Archives/edgar/data/0001510295/000151029520000006/mpc-20191231x10k.htm [https://perma.cc/G9XK-Y7G3].

50. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.

51. *Compare* Bank of Am. Corp., 2019 Form 10-K, *supra* note 8, at 16, *with* Wells Fargo & Co., 2019 Form 10-K, *supra* note 9, *and* Capital One Fin. Corp., 2019 Form 10-K, *supra* note 9.

52. *See infra* Part II. For a recent discussion of the importance of climate risk disclosures, compare Hana Vizcarra, *The Uncertainty Principles*, ENV'T F., Nov./Dec. 2020, at 23, 26 (contrasting resistance to disclosure by the SEC and Department of Labor Employee Benefits Security Administration with the more favorable response by the CFTC and Federal Reserve), with Peloso, *supra* note 12, at 27 (advocating use of climate scenario analysis as "a tool to enhance corporate resilience" rather than to motivate firms to reduce GHG emissions).

provisions focus on risks arising from new legislation or regulations,[53] but the material financial effects that arise from PEG initiatives are not government regulatory risks because they arise from private, not government, action. The 2010 Guidance also notes the importance of risks arising from the indirect consequences of regulation or business trends, but PEG initiatives are not simply the consequence of standard business trends, and the 2010 Guidance does not explicitly call attention to PEG climate risks or provide examples of the types of risks posed by PEG climate initiatives.[54]

It is not surprising that the 2010 Guidance overlooks the transition risks posed by PEG climate initiatives: the SEC drafted the guidance before the rapid growth in PEG climate initiatives over the last decade.[55] Important new reports on climate-related risks issued in 2020 by the CFTC and the Federal Reserve, however, follow a similar pattern.[56] A 2021 model SEC information request letter signals the SEC's growing awareness of PEG climate initiatives and the growth of ESG investing but still frames these risks as a form of market risk rather than recognizing that they are a discrete, hybrid form of regulatory and market risk that is driven by private sector actors and cannot be easily predicted or understood by simply examining traditional market forces.[57] Recent public-private hybrid disclosure efforts such as TCFD and SASB recognize the importance of some of the drivers of PEG climate initiatives, such as reputation and consumer preferences for low-carbon goods, but they provide only limited instructions for identifying and disclosing these risks, and they could be far more specific in calling out the potential material financial effects of a firm subject to or participating in a PEG climate initiative.[58]

53. *See* SEC 2010 Guidance, *supra* note 20, at 6,291, 6,296-97.

54. *See id.* at 6,296.

55. *See* Palmiter, *supra* note 29, at 4.

56. *See generally* CFTC Report, *supra* note 22; Federal Reserve Report, *supra* note 23.

57. U.S. Sec. & Exch. Comm'n, Div. of Corp. Fin., Sample Letter to Companies Regarding Climate Change Disclosures (Sept. 22, 2021), https://www.sec.gov/corpfin/sample-letter-climate-change-disclosures [https://perma.cc/Z32Q-Z42J].

58. *See* TCFD 2017 Report, *supra* note 24, at 41; SASB 2017 Framework, *supra* note 25, at 2-3. For a discussion of the emerging importance of private governance initiatives outside of the environmental protection area, see Rory Van Loo, *The New Gatekeepers: Private Firms as Public Enforcers*, 106 VA. L. REV. 467 (2020).

The failure of policymakers to identify and firms to consistently disclose PEG climate transition risks may reflect the difficulty scholars, professionals, and policy advocates face when confronting a new form of governance risk. Scholars are often tenacious in holding onto mental models,[59] and unless they are recent graduates, the lawyers, accountants, business managers, and policymakers driving and implementing securities disclosure efforts were trained to think of the regulatory universe as including two parties (to paraphrase the famous introduction to *Law & Order*): the government regulators and the private sector actors who are the targets of regulation.[60] When a new phenomenon arises that does not fit neatly into this dyadic view of the world, the regulatory community—the regulators and the regulated companies—may respond slowly. For many new phenomena, a slow response by the disclosure regulatory regime may be adequate and perhaps even advisable.[61] For climate change, however, prompt, major carbon emissions reductions are

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59. *See, e.g.*, Richard Conniff, *When Continental Drift Was Considered Pseudoscience*, SMITHSONIAN MAG. (June 2012), https://www.smithsonianmag.com/science-nature/when-continental-drift-was-considered-pseudoscience-90353214/ [https://perma.cc/H5NX-RFZQ]. For a more recent example relevant to climate science, see JAMES LAWRENCE POWELL, DEADLY VOYAGER: THE ANCIENT COMET STRIKE THAT CHANGED EARTH AND HUMAN HISTORY xiii-xiv (2020) (discussing reluctance to accept a new explanatory model of the causes of the Younger Dryas event, which produced a several hundred-year global cooling event).

60. Law & Order opens with the statement that "[i]n the criminal justice system, the people are represented by two separate yet equally important groups: the police who investigate crime, and the district attorneys who prosecute the offenders. These are their stories." *See Law & Order: Prescription for Death* (NBC television broadcast Sept. 13, 1990). Although questions regarding disclosure of PEG climate risks have not yet been a focus of federal or state courts, it is fair to assume that the same difficulty of recognizing the implications of this new form of governance will occur among judges as well. *See* Ramirez v. Exxon Mobil Corp., 334 F. Supp. 3d 832, 839, 844, 859 (N.D. Tex. 2018) (granting motion to dismiss shareholder suit); People v. Exxon Mobil Corp., No. 452044/2018, 2019 WL 6795771 (N.Y. Sup. Ct. Dec. 10, 2019) (addressing claim that Exxon Mobil misled investors on impact of future climate policies). For a discussion of *People v. Exxon Mobil*, see Han Li, *Climate Change Isn't Material?: How* People of the State of New York v. Exxon Mobil Corporation *Highlights the Need for Mandatory Greenhouse Gas Emission Disclosures*, MINN. L. REV. DENOVO (2020), https://minnesotalawreview.org/2020/04/26/climate-change-isnt-material-how-people-of-the-state-of-new-york-v-exxon-mobil-corporation-highlights-the-need-for-mandatory-greenhouse-gas-emission-disclosures/ [https://perma.cc/DSW7-PNXJ].

61. *See generally* Charles E. Lindblom, *The Science of "Muddling Through*,*"* 19 PUB. ADMIN. REV. 79 (1959); Charles E. Lindblom, *Still Muddling, Not Yet Through*, 39 PUB. ADMIN. REV. 517 (1979).

necessary to avoid locking in long-term climatic and social harms, and governments have been slow to respond.[62]

This Article identifies several viable steps that can be taken immediately to recognize and disclose PEG climate transition risks.[63] The SEC can update the 2010 Guidance to indicate explicitly that firms should assess and disclose the transition risks arising from PEG climate initiatives, and the CFTC and Federal Reserve can take similar steps. Public-private and private disclosure regimes, such as those developed by the TCFD and SASB, can clarify their disclosure language to note the importance of PEG initiatives more explicitly and can provide more detailed guidelines on how these risks should be assessed and disclosed. Over the longer term, the training of scholars, lawyers, accountants, business managers, and policymakers can better prepare the principal actors in the securities regulatory regime to recognize, assess, and disclose these risks.

In turn, increased disclosure of the transition risks posed by PEG climate initiatives can accelerate pressure for climate change mitigation activities by providing additional information to investors, corporate directors, corporate managers, employees, retail and corporate customers, advocates, philanthropists, and regulators about the effects of PEG climate initiatives. An extensive literature on disclosure of toxic emissions, anecdotal evidence of the effects of carbon disclosure on firm carbon emissions, and the theoretical foundations of the Securities Act of 1933 (the '33 Act)[64] and the Securities Exchange Act of 1934 (the '34 Act)[65] suggest that disclosure drives corporate action.[66] Disclosure of PEG climate

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62. Stephanie Ebbs, *Scientists: Time Running Short Before Climate Change Effects Are "Irreversible,"* ABC NEWS (Oct. 8, 2018, 1:17 PM), https://abcnews.go.com/International/united-nations-report-details-looming-climate-crisis/story?id=58354235 [https://perma.cc/8HAQ-X3PQ].

63. For a discussion of viable steps the new Biden administration can take to promote PEG climate initiatives, see Lou Leonard, Michael Vandenbergh & Jonathan Gilligan, *The Road Back to Paris Runs Through Pittsburgh*, PITTSBURGH POST-GAZETTE (Dec. 21, 2020, 6:15 AM), https://www.post-gazette.com/opinion/Op-Ed/2020/12/21/Lou-Leonard-Michael-Vandenbergh-and-Jonathan-Gilligan-The-road-back-to-Paris-runs-through-Pittsburgh/stories/202012210008 [https://perma.cc/M8NL-785R].

64. Securities Act of 1933, 15 U.S.C. §§ 77g(c), 77k.

65. Securities Exchange Act of 1934, 15 U.S.C. §§ 78d(a)-(b).

66. *See generally* Shameek Konar & Mark A. Cohen, *Information as Regulation: The Effect of Community Right to Know Laws on Toxic Emissions,* 32 J. ENV'T ECON. & MGMT. 109 (1997) (reporting on effects of TRI emissions on share value). For a discussion of the role of

transition risks can leverage existing market and social pressures on firms to reduce carbon emissions, demonstrate the influence of existing PEG initiatives, and encourage the development of new PEG initiatives. Increased disclosure can also inform advocacy groups and philanthropists of the effects of their initiatives, identify areas for expansion of existing initiatives or creation of new ones, and induce stakeholders to increase support for the most effective efforts and organizations. Given the deep partisan political divide in the United States, an approach that leverages private sector action may occur more quickly than other regulatory or statutory actions. Private sector action may yield carbon emissions reductions equal to major regulatory initiatives, and, by locking in private sector spending and infrastructure, may be more durable than many other types of government regulatory actions.

I. DISCLOSURE OF PRIVATE CLIMATE GOVERNANCE RISKS

Part I identifies the types of PEG climate initiatives and explores why these initiatives pose a discrete form of transition risk that is often worthy of disclosure by publicly traded firms. This Part then presents the results of a review of the securities disclosures of the Fortune 100 firms and the five largest firms in the coal, utility, and petroleum refining sectors to examine the extent to which firms are reporting the risks arising from PEG climate initiatives.

A. Types and Effects of PEG Climate Initiatives

As discussed above, for the purposes of this Article, PEG occurs when private sector actors perform the roles traditionally assigned to governments regarding environmental law and policy, such as reducing negative externalities and managing common pool resources and public goods.[67] Although the name assigned to the phenomenon

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information in regulating environmental and other risks, see Daniel C. Esty, *Environmental Protection in the Information Age*, 79 N.Y.U. L. REV. 115, 119-21 (2004), and Cass R. Sunstein, *Informational Regulation and Informational Standing:* Akins *and Beyond*, 147 U. PA. L. REV. 613, 614 (1999).

67. *See* Sarah E. Light & Michael P. Vandenbergh, *Private Environmental Governance*, *in* DECISION MAKING IN ENVIRONMENTAL LAW 253-67 (LeRoy C. Paddock et al. eds., 2016); Vandenbergh, *supra* note 27, at 146 (discussing public functions of private governance).

differs across disciplines, a growing literature explores the growth, effects, scope, and risks arising from private governance, private ordering, or private authority. PEG initiatives have spawned an active literature in law,[68] political science,[69] sociology,[70] economics,[71] psychology,[72] and other fields.[73] The growth of PEG has occurred across

68. *See, e.g.*, JASON J. CZARNEZKI, GREEN PUBLIC PROCUREMENT: LEGAL INSTRUMENTS FOR PROMOTING ENVIRONMENTAL INTERESTS IN THE UNITED STATES AND EUROPEAN UNION 71 (2019); Daniel A. Farber, *Going Private: Climate Action by Businesses and Individuals*, VAND. L. REV. EN BANC 197 (2018) (reviewing MICHAEL P. VANDENBERGH & JONATHAN M. GILLIGAN, BEYOND POLITICS: THE PRIVATE GOVERNANCE RESPONSE TO CLIMATE CHANGE (2017)); Dan Farber, *Going Private*, LEGAL PLANET BLOG (Mar. 12, 2018), http://legal-planet.org/2018/03/12/going-private/ [https://perma.cc/JM7P-M94Z]; Leonard, *supra* note 30, at 10559; Light, *supra* note 27; Light & Orts, *supra* note 27; TIMOTHY D. LYTTON, KOSHER: PRIVATE REGULATION IN THE AGE OF INDUSTRIAL FOOD (2013); LeRoy Paddock & Natasha Rao, *Green Supply Chain Management: A Perspective on Best Practices in GSCM Design*, 71 ARK. L. REV. 487 (2018); Vandenbergh, *supra* note 27; Vandenbergh & Gilligan, *supra* note 33; *see also* Joshua Ulan Galperin, *Trust Me, I'm a Pragmatist: A Partially Pragmatic Critique of Pragmatic Activism*, 42 COLUM. J. ENV'T L. 425, 494 (2017) (noting that PEG "can weaken the entire endeavor" of public environmental governance); Joshua Ulan Galperin, *Board Rooms and Jail Cells: Assessing NGO Approaches to Private Environmental Governance*, 71 ARK. L. REV. 403 (2018) [hereinafter Galperin, *Board Rooms and Jail Cells*] (identifying risks arising from PEG climate initiatives); Joshua Ulan Galperin, *Environmental Governance at the Edge of Democracy*, 39 VA. ENV'T L.J. 70 (2021) (exploring relationship of private and public environmental governance).

69. *See, e.g.*, Steven Bernstein & Benjamin Cashore, *Complex Global Governance and Domestic Policies: Four Pathways of Influence*, 88 INT'L AFFS. 585 (2012); JESSICA F. GREEN, RETHINKING PRIVATE AUTHORITY: AGENTS AND ENTREPRENEURS IN GLOBAL ENVIRONMENTAL GOVERNANCE (2014); Zdravka Tzankova, *Interactions Between Private and Public Resource Governance: Key Insights from the Fisheries Case*, 6 WM. & MARY POL'Y REV. 1 (2014).

70. *See, e.g.*, Tim Bartley, *Transnational Corporations and Global Governance*, 44 ANN. REV. SOCIO. 145 (2018); Paul C. Stern & Thomas Dietz, *A Broader Social Science Research Agenda on Sustainability: Nongovernmental Influences on Climate Footprints*, 60 ENERGY RSCH. & SOC. SCI. 1 (2020).

71. *See, e.g.*, Mark A. Cohen & Michael P. Vandenbergh, *The Potential Role of Carbon Labeling in a Green Economy*, 34 ENERGY ECON. S53-S63 (2012); Thomas P. Lyon & John W. Maxwell, *Greenwash: Corporate Environmental Disclosure Under Threat of Audit*, 20 J. ECON. & MGMT. STRATEGY 3 (2011).

72. *See, e.g.*, Heather Barnes Truelove, Amanda R. Carrico, Elke U. Weber, Kaitlin Toner Raimi & Michael P. Vandenbergh, *Positive and Negative Spillover of Pro-Environmental Behavior: An Integrative Review and Theoretical Framework*, GLOB. ENV'T CHANGE, Nov. 2014, at 127, 129-38 (examining spillover effects of public and private pro-environmental behavioral interventions); Ash Gillis, Michael Vandenbergh, Kaitlin Raimi, Alex Maki & Ken Wallston, *Convincing Conservatives: Private Sector Action Can Bolster Support for Change Mitigation in the United States*, 73 ENERGY RSCH. & SOC. SCI. 1 (2021) (reporting on empirical study of the effects of private climate governance initiatives on support for climate mitigation among moderates and conservatives).

73. *See, e.g.*, Katerina Peterkova Mitkidis, *Sustainability Clauses in International Supply Chain Contracts: Regulation, Enforceability and Effects of Ethical Requirements*, NORDIC J.

many of the subject matter areas addressed by environmental lawyers, including not only climate change, but also toxics, global fisheries, forestry, organic food, food safety, trade, and others.[74] PEG initiatives also utilize many of the same instrument types as are deployed in public environmental governance regimes, including disclosure, prescriptive standards, market leveraging, and others.[75]

PEG initiatives that focus on climate change mitigation have grown substantially since the SEC issued the 2010 Guidance. These initiatives involve joint actions by corporations and advocacy groups, unilateral corporate actions such as commitments to procure renewable power, and corporate-corporate interactions such as large firms' imposition of climate mitigation obligations on their suppliers.[76] Climate change advocacy has involved dark green groups such as Greenpeace, the Sierra Club, and the Rainforest Action Network, which often focus on naming and shaming campaigns, and bright green groups such as Ceres, the Environmental Defense Fund, the Natural Resources Defense Council, the World Resources Institute, and the World Wildlife Fund, which engage in naming and shaming but often also focus on collaborative activities.[77]

1. Drivers

Corporate participation in private governance initiatives is motivated by a complex set of drivers, including the prospect of financial gains from efficiency or new business opportunities and avoidance of reputation or brand risks, response to employee and manager norms, and response to retail customer pressure.[78] Political

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COM. L. 1 (2014) (examining environmental supply chain contracting in Europe).

74. *See, e.g.*, Liliana B. Andonova, Michele M. Betsill & Harriet Bulkeley, *Transnational Climate Governance*, GLOB. ENV'T POL., May 2009, at 52; Steven Bernstein & Matthew Hoffmann, *The Politics of Decarbonization and the Catalytic Impact of Subnational Climate Experiments*, 51 POL'Y SCIS. 189 (2018); Jessica F. Green, *The Strength of Weakness: Pseudo-Clubs in the Climate Regime,* 144 CLIMATIC CHANGE 41 (2017); Light & Vandenbergh, *supra* note 67.

75. *See generally* Light & Orts, *supra* note 27.

76. *See* Leonard, *supra* note 30, at 10553, 10556, 10559, 10561.

77. *See* Andrew J. Hoffman, *Shades of Green*, 7 STAN. SOC. INNOVATION REV. 40, 40-49 (2009).

78. *See* Michael P. Vandenbergh, *The Drivers of Corporate Climate Mitigation*, ENV'T F., Jan.-Feb. 2018, at 29.

scientists have argued that these types of drivers result in a firm needing a social license as well as a legal license to operate.[79] In turn, these drivers induce firms to regulate other firms through corporate supply chain, investor, lender, and insurer pressure and, in some cases, legally binding requirements such as supply chain contract provisions.[80] Louis Leonard, the former head of energy and climate programs for the World Wildlife Fund,[81] played a key role in organizing several leading PEG climate initiatives over the last decade, including We Are Still In, the Renewable Energy Buyers Alliance (REBA), and others.[82] Leonard groups the drivers of corporate participation in PEG climate initiatives into five categories:

- The business case for action, which includes the financial pressure resulting from growing recognition of climate risks, the improvement of returns on investment due to falling costs of climate solutions, and the increased likelihood of public policy responses to climate change;

- public pressure, which includes boycotts, naming and shaming campaigns, and advocacy organization pressure;

- evolving norms, which include the growing concern about climate change from industry leaders and employees, making it outside of the norm for companies in many sectors to avoid these concerns;

- business-to-business pressure, which includes the incorporation of climate issues in supply chain contracts and procurement policies; and

79. *See* Neil Gunningham, Robert A. Kagan & Dorothy Thornton, *Social License and Environmental Protection: Why Businesses Go Beyond Compliance*, 29 LAW & SOC. INQUIRY 307, 308-10 (2004).

80. Legal scholar Lisa Benjamin notes that while companies have not been adequately characterizing their climate risk or preparing for its impact, investors are increasing the pressure to be transparent about emissions and sustainability. Benjamin, *supra* note 21, at 351-52.

81. *Lou Leonard*, B.C. L. SCH. MAG. (2021), https://lawmagazine.bc.edu/class_note/lou-leonard/ [https://perma.cc/H28P-NX3T].

82. For example, the "We Are Still In" movement involved corporations, cities, states, and other organizations expressing an intent to meet the goals of the Paris Agreement even absent participation by the U.S. government during the Trump administration. *See* Leonard, *supra* note 30, at 10559.

- financial system pressure, which arises as investors, lenders, and insurers recognize climate-related risks and become hesitant to do business with companies that have unsustainable climate practices.[83]

These drivers help explain the extensive growth of PEG climate initiatives, but an important feature of the emerging system is that it exhibits a certain amount of circularity regarding the motivations for corporate climate actions.[84] This circularity can lead to additional momentum and cascades of action, although it makes developing a model of PEG climate actions difficult.[85]

For instance, corporate climate commitments may occur initially because of the business case, public pressure, and evolving norms.[86] Cascades may then occur as additional firms make climate commitments, and the growing number of firms announcing commitments strengthens the business case, public pressure, and the perceived norms among managers and employees, and these motivations then induce firms to pressure others via business-to-business (B-to-B) and financial system pressure.[87] In turn, the B-to-B and financial system pressure can further increase the business case for climate action, embolden advocates who conduct public pressure campaigns, and bolster evolving norms among employees and customers.[88]

To assess the extent to which PEG climate initiatives present material transition risks that are distinct from government regulatory transition risks, it is important to understand the types of initiatives that have emerged since the SEC issued the 2010 Guidance. First, many initiatives create or channel external advocacy

83. *See id.* at 10552-55. The five categories of PEG climate initiatives identified by Lou Leonard are: (1) the business case for action; (2) business-to-business pressure; (3) public pressure; (4) financial system pressure; and (5) evolving norms. *See id.* Private financial rating firms also are increasingly playing a private governance role regarding climate change mitigation. *See* Kevin Fagan & Blair Coulson, *Moody's Including Four Twenty Seven Climate Risk Data into Research and Ratings on US CMBS and CRE CLOs*, MOODY'S (Aug. 11, 2020), https://www.moodys.com/research/Moodys-including-Four-Twenty-Seven-climate-risk-data-into-research-PBS_1241276 [https://perma.cc/8NZV-YJKC].

84. *See* Cohen & Vandenbergh, *supra* note 71, at S55.

85. *See id.*

86. *See* Leonard, *supra* note 30, at 10552-55.

87. *See id.* For an example regarding social norms, see Cass R. Sunstein, *Social Norms and Social Roles,* 96 COLUM. L. REV. 903 (1996).

88. *See* Leonard, *supra* note 30, at 10552-55.

group or public pressure on firms to make and implement climate commitments using naming and shaming or other similar strategies.[89] The targets of naming and shaming campaigns are often firms with retail customers who focus on climate issues or firms that otherwise may be particularly concerned about brand or reputation issues.[90]

Second, other disclosure-based initiatives do not engage in naming and shaming but focus on using more neutral actions to induce firms to reduce GHG emissions.[91] For instance, CDP (formerly the Carbon Disclosure Project) uses the influence of investors with roughly 100 trillion dollars in assets under management to induce corporations to disclose and reduce their GHG emissions.[92] The CDP effort is more focused on consistent, accurate reporting of GHG emissions than naming and shaming.[93] Similarly, the Global Reporting Initiative focuses on reporting GHG and other emissions without engaging in naming and shaming.[94]

Third, other initiatives focus on generating and harnessing employee pressure for employer corporate action, such as highly publicized actions by employees at Amazon, Facebook, and Google.[95] An executive at a technology firm has indicated that employee recruitment and retention are driving much of its climate commitments.[96] Fourth, other initiatives focus on increasing pressure on investors, lenders, and insurers to increase the pressure on the firms they invest in, lend to, and insure.[97] Examples include 350.org's divestiture campaigns[98] and many advocacy groups' efforts to increase the use

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89. *See id.* at 10553.

90. *See id.* For example, Bank of America has disclosed the risks presented by reputational harm from the "perception of [its] environmental, social and governance practices and disclosures." Bank of Am. Corp., 2019 Form 10-K, *supra* note 8, at 16.

91. *See* Hoffman, *supra* note 77, at 42.

92. *See* Leonard, *supra* note 30, at 10555-56. CDP is a nonprofit organization that collects and publishes data from companies, cities, and states on climate change, water security, and deforestation. CDP, https://www.cdp.net/en/ [https://perma.cc/YA2L-Z9QX].

93. *See* CDP, *supra* note 92.

94. *Welcome to GRI*, GRI, https://globalreporting.org [https://perma.cc/3H2H-YKE3].

95. *See* Leonard, *supra* note 30, at 10553.

96. *See* Cassie Phillips, Jonathan Gilligan, Stephen Harper, Jackie Roberts & Michael P. Vandenbergh, *Beyond Politics: The Private Governance Response to Climate Change*, 48 ENV'T L. REP. 11049, 11054-56 (2018) (panel discussion).

97. *See* Leonard, *supra* note 30, at 10553-54.

98. *See* Galperin, *Board Rooms and Jail Cells*, *supra* note 68, at 456-58.

of fossil fuel screens by investment firms and pension funds.[99] Initiatives by climate advocacy groups such as Ceres include an element of simple disclosure as well as naming and shaming to increase pressure on investors, which in turn may induce investors to create pressure for GHG reductions by corporations.[100] Climate Action 100+ is an investor initiative led by Ceres,[101] an environmental advocacy group, and the initiative attempts to increase the pressure on over 250 of the world's largest companies to reduce GHGs.[102]

Fifth, other initiatives focus on inducing firms to take specific action, such as adopting GHG reduction goals, buying renewable power, or imposing supply chain contracts on suppliers.[103] Three initiatives demonstrate the focus on specific actions. As to climate goals, the Science Based Target Initiative (SBTi) is a partnership between CDP, the UN Global Compact, World Resources Institute, and the World Wide Fund for Nature that works with companies to provide specific GHG reduction targets.[104] The GHG targets are designed to account for the companies' share of reductions necessary to achieve the Paris Agreement goal of holding global average temperatures to under a 2°C increase over pre-industrial levels, and more recently to achieve under a 1.5°C increase.[105] SBTi discloses the companies that have made commitments to achieve SBTi targets, provides technical support, and assesses how likely the companies are to meet the targets.[106] As to renewable power purchases,

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99. *See* Stern & Dietz, *supra* note 70, at 2; Phillips et al., *supra* note 96, at 11055-56.

100. *See Climate Action 100+*, CERES, https://www.ceres.org/initiatives/climate-action-100 [https://perma.cc/4APY-CJYY].

101. *See id.*

102. Tim Buckley & Saurabh Trivedi, *From Zero to 50: Global Finance Is Fleeing Oil & Gas*, INST. FOR ENERGY ECON. & FIN. ANALYSIS (Oct. 2020), https://ieefa.org/wp-content/uploads/2020/10/From-Zero-to-50-Global-Finance-is-Fleeing-Oil-and-Gas_October-2020.pdf [https://perma.cc/6E9W-D3BM].

103. *See* Leonard, *supra* note 30, at 10556, 10558, 10561.

104. *See Who We Are*, SCI. BASED TARGETS, https://sciencebasedtargets.org/about-us#who-we-are [https://perma.cc/FX7N-8C3H]. Its core funding is provided by IKEA Foundation, We Mean Business, The Rockefeller Brothers Fund, and The UPS Foundation with additional support from a diverse group of companies and organizations. *See Funders*, SCI. BASED TARGETS, https://sciencebasedtargets.org/about-us/funders [https://perma.cc/4J2T-2HYN].

105. *See About Us*, SCI. BASED TARGETS, https://sciencebasedtargets.org/about-us [https://perma.cc/9NWY-MMAP].

106. *See id.*

REBA is a joint corporate advocacy group initiative that facilitates commitments by over 200 firms to procure 100 percent renewable power.[107] Corporate climate commitments, such as those made by Google and Facebook, and corporate-NGO collaborations to promote renewable power, such as REBA, increase pressure on utilities to provide renewable power and have facilitated substantial growth in renewable power even in states that are either on the sidelines or actively hostile to climate mitigation.[108] The scale of these purchases is remarkable. For instance, Google (via Alphabet) disclosed that in 2019 it purchased 1,600 megawatts of renewable energy through participation in over eighteen new energy deals and anticipated construction of two billion dollars in new energy infrastructure.[109]

Many recent initiatives have focused on increasing supply chain contracting commitments by inducing firms to commit to disclosing and reducing the GHG emissions not only from the firm's operations, but also from the operations of its suppliers.[110] By inducing firms to calculate, disclose, and reduce the GHG emissions of their entire value chain, including suppliers, these initiatives create incentives for the firm to serve as a private regulator of other

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107. *See Our Vision*, RENEWABLE ENERGY BUYERS ALL. (REBA), https://rebuyers.org/about/vision [https://perma.cc/Y9ZW-ELKM].

108. *See* Michael P. Vandenbergh, Jim Rossi & Ian Faucher, *The Gap-Filling Role of Private Environmental Governance*, 38 VA. ENV'T L.J. 1, 41-44, 54 (2020).

109. Alphabet, Inc., 2019 Form 10-K, *supra* note 4, at 8. Additionally, General Motors disclosed that in 2019, it executed a green tariff to source 300,000 megawatt hours of renewable energy. General Motors Co., 2019 Form 10-K, *supra* note 5, at 7.

110. *See, e.g.*, Intel Corp., Annual Report (Form 10-K), at 13 (Jan. 23, 2020), https://www.sec.gov/Archives/edgar/data/50863/000005086320000011/a12282019q4-10kdocument.htm [https://perma.cc/ZJ59-YVFY]. Among the Fortune 100 firms discussed in Part II.B, Intel provided one of the most extensive disclosures regarding supply chain contracting:

> We have robust programs to educate and engage suppliers that support our global manufacturing operations to drive responsible and sustainable practices throughout the supply chain. Actively managing our supply chain creates business value for Intel and our customers by helping to reduce risk, improve product quality, achieve environmental and social goals, and raise the overall performance of our suppliers. Over the past five years, we completed more than 600 supplier audits using the Responsible Business Alliance Code of Conduct standard. We actively collaborate with other companies and lead industry initiatives on key issues such as advancing responsible minerals sourcing, improving transparency around climate and water impacts in the global electronics supply chain, and addressing risks of forced and bonded labor.

Id.

firms.[111] The growing focus on supply chain contracting has led to programs by CDP and the Environmental Law Institute in the United States, and the Chancery Lane Project in the United Kingdom, among other nonprofit groups.[112] An example of the large effects supply chain contracting can have on corporate buyers and suppliers is Walmart's Project Gigaton, through which Walmart is working with WWF and other advocacy groups to achieve a billion tons of GHG emissions reductions from its tens of thousands of global suppliers by 2030.[113]

2. Types of Risk

PEG climate initiatives not only have major climate and economic consequences, but also pose a type of transition risk that is distinct from government regulatory risks. PEG climate initiative-based transition risks differ from regulatory risks in that they are driven by many types of private actors, not by government legislative or regulatory bodies.[114] This difference between private initiative-based and regulatory-based transition risks is critical for understanding climate policy because it affects both the feasibility of creating climate change mitigation pressure on firms and the durability of that pressure. As the last thirty years demonstrate, adopting major new environmental legislation is difficult,[115] and as the last four years demonstrate, federal regulatory efforts can easily be repealed,

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111. *See* Leonard, *supra* note 30, at 10553, 10561-62.

112. *See, e.g.*, CARBON TRUST, *Cascading Commitments: Driving Ambitious Action Through Supply Chain Engagement* 1, 9, 11 (2019), https://6fefcbb86e61af1b2fc4-c70d8ead6ced550b4d987d7c03fcdd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/004/072/original/CDP_Supply_Chain_Report_2019.pdf?1550490556 [https://perma.cc/SXS7-PMUR] (providing CDP's 2018-2019 Supply Chain Report); *Private Environmental Governance*, ENV'T L. INST., https://www.eli.org/private-environmental-governance [https://perma.cc/K9XL-Q5PH]; *About the Chancery Lane Project*, CHANCERY LANE PROJECT, https://chancerylaneproject.org/about/ [https://perma.cc/WPW3-LM3M].

113. *See generally* Leonard, *supra* note 30, at 10550-51, 10553, 10558 (discussing PEG climate initiatives and Project Gigaton).

114. *See* GREEN, *supra* note 69, at 1.

115. *See* Vandenbergh, *supra* note 27, at 131 (stating that no major new pollution control statutes have been adopted since 1990); DAVID GARDINER & ASSOCS., FEDERAL CLIMATE LEGISLATION: AN OVERVIEW OF POLICIES BENEFICIAL TO ACHIEVING CORPORATE SUSTAINABILITY GOALS 5-6 (2020), https://www.dgardiner.com/federal-climate-legislation-an-overview-of-policies-beneficial-to-achieving-corporate-sustainability-goals/ [https://perma.cc/X4DR-HY7T] (discussing difficulty of adopting new climate legislation).

replaced, or delayed.[116] PEG climate initiatives draw on the preferences and motivations of consumers, employees, investors, and firms, and can lead to greenwashing or other adverse effects in some cases, but these initiatives are not subject to gerrymandering, the asymmetric power of rural states that is baked into our constitutional design, or a Supreme Court that is not receptive to broad views of federal legislative or regulatory power.[117] PEG climate initiatives thus are a discrete phenomenon from a climate policy perspective, because they provide public and private policy makers with the ability to create and sustain pressure for decarbonization even when demand for federal leadership has not overcome the structural, ideological, and interest group barriers to more comprehensive federal climate legislation.[118]

The difference between private initiative-based and government regulatory-based transition risks is also critical for understanding the financial position of firms. Private initiatives can be adopted and implemented even if the political system is captured by anti-regulatory ideologies or fossil fuel interests.[119] They thus pose transition risks that exist for firms even if national or subnational governments do not act to reduce GHG emissions or act to undermine climate statutes, regulations, and policies. As a result, even if divided government continues or swings continue between pro- and anti-climate mitigation administrations, PEG climate initiatives may continue to affect the financial results of the firms that participate in or are targeted by them.[120] Firms that can capture agencies and undermine public governance may be less able to control, or at least insulate themselves from, private initiatives. For instance, the ability to influence elections and lobby Congress or the Environmental Protection Agency does not insulate a company from public shaming or loss of B-to-B customers if corporate buyers have adopted procurement policies with renewable energy or GHG reduction requirements. A disclosure regime that conflates transition

116. *See* ENV'T L. INST., ENVIRONMENT 2021: WHAT COMES NEXT? 7-9 (2020) (discussing Trump administration deregulatory actions and potential responses).

117. *See* Michael P. Vandenbergh & Bruce M. Johnson, *The Role of Private Environmental Governance in Climate Adaptation*, FRONTIERS CLIMATE, Sept. 2021, at 1, 2 n.1, 3-4.

118. *See* VANDENBERGH & GILLIGAN, *supra* note 38, at 3-4.

119. *See* Vandenbergh, *supra* note 27, at 161-62.

120. *See id.*

risks with government regulation risks can be expected to produce uneven firm disclosures and to provide investors with inadequate information about these risks.

3. Materiality

Even if private climate initiatives are a widespread, discrete form of transition risk, under current SEC reporting requirements these risks may not be worthy of disclosure if they are not material to a reasonable investor.[121] Yet a large body of academic and policy literature, statements by major investors and corporate officials, and actions by governments suggest that PEG climate initiatives often have the attributes of material risks: they occur at a substantial scale and have the types of effects on the supply and demand for goods and services, the preferences of investors, and other aspects of markets that easily could result in material effects for any one firm.[122] For instance, academic and government reports have concluded that PEG climate initiatives and other non-state actor initiatives have reduced GHG emissions by more than a billion tons per year on a global level and by hundreds of millions of tons in the United States, and can achieve additional reductions of billions of tons globally, outcomes that would be difficult to achieve without major financial effects on firms as well.[123] In addition, many PEG

121. *See, e.g.*, Staff Accounting Bulletin: No. 99—Materiality (Aug. 12, 1999), https://www.sec.gov/interps/account/sab99.htm [https://perma.cc/Z6GD-J4J5] ("A matter is 'material' if there is a substantial likelihood that a reasonable person would consider it important" and concluding that numerical thresholds are insufficient to determine materiality.); FIN. ACCT. STANDARDS BD., STATEMENT OF FINANCIAL ACCOUNTING CONCEPTS NO. 2: QUALITATIVE CHARACTERISTICS OF ACCOUNTING INFORMATION 46 (1980) ("The omission or misstatement of an item in a financial report is material if, in the light of surrounding circumstances, the magnitude of the item is such that it is probable that the judgment of a reasonable person relying upon the report would have been changed or influenced by the inclusion or correction of the item."). According to the Supreme Court, a fact is material if there is "a substantial likelihood that the ... fact would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information made available." TSC Indus. v. Northway, Inc., 426 U.S. 438, 449 (1976).

122. *See* Vandenbergh & Gilligan, *supra* note 33, at 218-19.

123. *See, e.g.*, DATA DRIVEN YALE, NEWCLIMATE INST. & PBL NETHERLANDS ENV'T ASSESSMENT AGENCY, GLOBAL CLIMATE ACTION FROM CITIES, REGIONS, AND BUSINESSES 35-36 (2018), https://newclimate.org/2018/08/30/global-climate-action-from-cities-regions-and-businesses/ [https://perma.cc/BJ4R-5S2F]; YALE DATA-DRIVEN ENV'T SOLS. GRP., WHO'S ACTING ON CLIMATE CHANGE?: SUBNATIONAL AND NON-STATE GLOBAL CLIMATE ACTION 6 (2017),

initiatives focus on enhancing or reducing the reputation of firms, and reputation constitutes more than half of the value of many firms.[124] Statements by leading institutional investors[125] and corporate executives[126] also suggest that PEG climate initiatives often have had or will have major financial effects on firms in some industries.

An additional indication that PEG climate initiatives are likely to have material effects for some industry sectors is the fact that the potential targets of these initiatives have mobilized sympathetic politicians to try to destroy them. Examples include a Trump executive order targeting ERISA fiduciary duties regarding the use of ESG criteria to screen out investments in firms associated with fossil fuels, which resulted in an ERISA fiduciary duty rule on this issue,[127] the Trump Comptroller of the Currency's rule prohibiting banks from adopting policies disfavoring funding for fossil fuel projects,[128] a 2020 letter from several members of Congress threatening

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https://datadrivenlab.org/wp-content/uploads/2017/11/DDY_Taking-Stock-of-Global-Climate-Action.pdf [https://perma.cc/PKR4-U49X]; UNITED NATIONS ENV'T PROGRAMME, EMISSIONS GAP REPORT 2018 31; VANDENBERGH & GILLIGAN, *supra* note 38, at 3 (concluding that PEG climate initiatives could achieve a billion tons per year in GHG emissions reductions).

124. *See* David P. Baron & Daniel Diermeier, *Strategic Activism and Nonmarket Strategy*, 16 J. ECON. & MGMT. STRATEGY 599, 601-02 (2007); DANIEL DIERMEIER, REPUTATION RULES x-xvi (2011).

125. *See, e.g.*, Letter from BlackRock's Global Executive Committee to Clients (Jan. 14, 2020), https://www.sec.gov/comments/s7-23-19/s72319-6706471-206111.pdf [https://perma.cc/E28S-VMWQ] (informing clients that BlackRock will be participating in the low carbon economic transition and noting that climate change is "increasingly material to investment outcomes"); Letter from BlackRock's Global Executive Committee to Clients (Jan. 26, 2021), https://www.politico.com/f/?id=00000177-3f22-da54-a9ff-fff3c0f80000 [https://perma.cc/GPR9-M2EE] (noting that BlackRock will be "[a]sking companies to disclose a business plan aligned with the goal of limiting global warming to well below 2ºC, consistent with achieving net zero global greenhouse gas emissions by 2050").

126. *See* Klump et al., *supra* note 41 (quoting Dominion Chief Executive Officer for the proposition that "we are on an unwavering and industry-leading path to net-zero emissions, consistent with state-level policy priorities. A more sustainable energy future is what our shareholders, customers, communities and employees want, and we intend to deliver.").

127. Financial Factors in Selecting Plan Investments, 85 Fed. Reg. 72,846 (Nov. 13, 2020) (to be codified at 29 C.F.R. pts. 2509, 2550). The rule was issued under the Employee Retirement Income Security Act of 1974 and requires retirement plan fiduciaries to base investment decisions only on "pecuniary factors." *See* Cheryl Bolen, *Final 'Do-Good' Investing Rule Released by Labor Department*, BLOOMBERG L. (Oct. 30, 2020, 5:06 PM), https://news.bloomberglaw.com/daily-labor-report/final-do-good-investing-rule-released-by-labor-department [https://perma.cc/RX62-NWDA].

128. Fair Access to Financial Services, 85 Fed. Reg. 75,261 (Nov. 25, 2020) (to be codified

JPMorgan Chase and other banks after they announced that they would not lend to oil drilling in the Arctic, a threatening letter from treasurers and attorneys general from conservative states threatening the banking industry with "collective action" to discourage fossil fuel-related lending restrictions, and an effort by the American Legislative Exchange Council to induce state legislatures to adopt model legislation designed to discourage the SEC from requiring disclosure and to discourage banks from participating in PEG climate initiatives.[129]

The materiality of PEG climate initiatives and their distinctive characteristics can be understood through a hypothetical based loosely on an actual PEG climate initiative.[130] Imagine that you are

at 12 C.F.R. pt. 55); Michelle Price, *Wall Street Banks Can't Snub Certain Industry Sectors Under Proposed New Rule*, REUTERS (Nov. 20, 2020, 4:42 PM), https://www.reuters.com/article/usa-regulation-lendingidUSL4N2I63NQ [https://perma.cc/6GN6-3PSL].

129. *Alaska Lawmakers: Discrimination Involved in Arctic Decision*, ASSOCIATED PRESS (June 18, 2020), https://apnews.com/article/8d93042083896fd836625c780d63c2be [https://perma.cc/4VQM-85SQ] (noting that Alaska's congressional delegation issued a letter saying that banks that prohibit or limit investment in new petroleum refining projects in the Arctic may be discriminating against the people that rely on the industry). Advocacy group reputation campaigns and investor and lender campaigns appear to have played an important role in discouraging petroleum firms from bidding on oil drilling rights in the Arctic National Wildlife Refuge. *See* Henry Fountain, *Sale of Arctic Drilling Leases Draws an Unusual Taker. It May Be the Only One.*, N.Y. TIMES (June 1, 2021), https://www.nytimes.com/2020/12/30/climate/anwr-arctic-drilling-leases.html?searchResultPosition=1 [https://perma.cc/ATW5-YH67] (stating that according to an energy financial analyst "companies were highly unlikely to bid, given the cost of exploring and drilling for oil in the Arctic, the potential damage to their reputations from operating on lands prized by environmentalists, the growing movement among major banks to refuse to finance drilling in the refuge, and the depressed state of the industry amid the coronavirus pandemic"); Letter from Riley Moore, State Treasurer, State of West Virginia, to Whom it May Concern in the U.S. Banking Industry (Nov. 22, 2021), https://www.documentcloud.org/documents/21128588-fossil-fuel-banking-letter-nov-22 [https://perma.cc/78XS-QP3M] (notifying banks that the letter authors will be taking "collective action in response to the ongoing and growing economic boycott of traditional energy production industries by U.S. financial institutions"); Kenny Stancil, *'Alarming': ALEC's New Model Bill Would Penalize Banks for Divesting From Fossil Fuels*, COMMON DREAMS (Dec. 8, 2021), https://www.commondreams.org/news/2021/12/08/alarming-alecs-new-model-bill-would-penalize-banks-divesting-fossil-fuels [https://perma.cc/4QAV-BAFR]. For an overview of recent efforts to discourage PEG climate initiatives, see Kate Aronoff, *Conservatives Have a New Bogeyman: Critical Energy Theory*, NEW REPUBLIC (Dec. 7, 2021), https://newrepublic.com/article/164641/conservatives-new-bogeyman-critical-energy-theory [https://perma.cc/94EX-RE68].

130. For background on Walmart's climate commitments, see VANDENBERGH & GILLIGAN, *supra* note 38, at 184. For background on Walmart's light bulb procurement and the effects on U.S. energy use and GHG emissions, see Lucas W. Davis, *Evidence of a Decline in*

an investor in 2005 in a firm that derives much of its revenue from manufacturing light bulbs sold to major retailers. The firm has managed its investments in new plants and equipment to ensure that its light bulbs, which include traditional incandescent bulbs as well as more efficient compact fluorescents (CFLs), will meet federal regulatory requirements for light bulb efficiency and will do so for the foreseeable future. The firm has accurately described to shareholders that light bulb sales are an important aspect of the firm's business and that the firm complies with all government laws, regulations, and policies. Through its trade association, the firm has supported limited efficiency requirements that will encourage use of CFLs but discourage use of more efficient light-emitting diode (LED) bulbs, which the firm is not well positioned to manufacture. The firm discloses the risks that may arise from future government regulatory requirements and business trends regarding the price of natural resources, labor, and the demand for light bulbs. The firm also is ahead of its time in thinking about climate change and discloses that it does not anticipate material adverse effects from the physical or transition risks posed by climate change.

The firm's major customer is Walmart, however, and Walmart is massive, with sales that exceed its nearest competitor, Target, by more than ten times. Walmart has been the subject of naming and shaming initiatives by advocacy groups regarding its environmental, health care, and other practices, and Walmart has begun collaborating with the Environmental Defense Fund and other environmental advocacy groups to reduce its carbon footprint and improve its reputation. Even absent federal or state government requirements to do so, Walmart announces major climate commitments and, to follow through on those commitments, announces that because LED bulbs are far more efficient than CFLs, producing less GHG emissions during the lifetime of each bulb, Walmart will sell and promote as its house brand only LED bulbs. It announces that the first manufacturer that can make an LED bulb that

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Electricity Use by U.S. Households, 37 ECON. BULL. 1098 (2017) (noting correlation between Walmart's LED initiative and a decline in household electricity use); Jonathan M. Gilligan & Michael P. Vandenbergh, *A Framework for Assessing the Impact of Private Climate Governance*, 60 ENERGY RSCH. & SOC. SCI. 1 (2020) (calculating that Walmart's LED light bulb initiative reduced U.S. GHG emissions by 127 million tons per year).

generates attractive light for under ten dollars per bulb will become its preferred supplier. A small manufacturer wins this race and becomes Walmart's leading supplier.

As the discussion in Part III demonstrates, the light bulb manufacturing firm's disclosure likely complied with the requirements of government agencies and the recommendations of hybrid disclosure regimes.[131] Unfortunately for the investor in the light bulb firm, however, Walmart's response to climate advocates has wiped out much of the market for incandescent and CFL bulbs, and unfortunately for the investors in the light bulb manufacturing firm, the firm did not disclose, and investors did not have the information necessary to account for, the material financial risk posed by the PEG climate initiatives directed at Walmart and later participated in by Walmart through its requirements for light bulb suppliers. The light bulb firm followed SEC reporting requirements, and it even anticipated the climate disclosure directions provided by the SEC in the 2010 guidance and other disclosure regimes, but these requirements and clarifying documents did not specify that firms are required to assess and disclose the material transition risks posed by PEG climate initiatives such as Walmart's commitment to switch to LED bulbs.

The harms arising from the types of inadequate disclosure of PEG climate risks outlined in this hypothetical affect not only investors, but also climate change mitigation efforts. The lack of disclosure undermines the ability of advocacy groups to assess the efficacy of their private initiatives and the ability of philanthropists to allocate resources to the most effective groups and initiatives. It undermines corporate directors' ability to assess the performance of corporate managers, and corporate managers' ability to assess whether they should get on the bandwagon regarding PEG climate initiatives, changing their product mix and imposing new requirements on their suppliers. It also undermines government policymakers' ability to anticipate the contribution that PEG climate initiatives will make to climate change mitigation and to allocate government resources in ways that leverage the most effective PEG climate initiatives and avoid duplicating those initiatives.

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131. *See infra* Part III.

The research results demonstrate that PEG climate initiatives are widespread and are producing major carbon emissions reductions,[132] but they are just indications that PEG climate initiatives may be posing material transition risks, and it is possible that these initiatives are posing risks, but the risks are not material to some large firms. For instance, there are indications that investors have shown less interest in climate risk disclosures than some early predictions: an HSBC survey of two thousand investors found that just 10 percent viewed the disclosures as a relevant source of information.[133] Similarly, a recent assessment suggests that the movement for climate-related fossil fuel divestiture may be more common among institutional investors than retail investors.[134] To examine whether firms view PEG climate initiatives as posing material risks and disclose those risks, in Part II.B, this Article presents the results of the empirical study of climate disclosures included in the most recent annual reports by the Fortune 100 firms and the largest firms in sectors likely to be under the most pressure from PEG climate initiatives.[135]

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132. *See* VANDENBERGH & GILLIGAN, *supra* note 38, at 3-4.

133. *See* Leslie Hook & Matthew Vincent, *Green Business Reporting Rules at Risk of Pale Response*, FIN. TIMES (Nov. 12, 2020), https://www.ft.com/content/ad01f2c9-9eb0-4db6-9898-220c688d16c2 [https://perma.cc/SGZ2-T9XG]. Another concern is that firms discuss risks, but do not act based on those risks. *Id.* (quoting an economist at the Institute for Public Policy Research).

134. *See* Felix Mormann, *Why the Divestment Movement Is Missing the Mark*, 10 NATURE CLIMATE CHANGE 1067, 1067-68 (2020) (arguing that ESG commitments by individual investors lag behind institutional investors). *But see* Michael Wursthorn, *Investors Pile into ETFs Devoted to Socially Responsible ESG*, WALL ST. J. (Dec. 16, 2020, 4:51 PM), http://www.wsj.com/articles/investors-pile-into-etfs-devoted-to-socially-responsible-esg-11608114604 [https://perma.cc/68DQ-WAH2] (noting that in 2020, retail investors in the United States added a record $27.4 billion to ESG exchange-traded funds); PWC, 2022: THE GROWTH OPPORTUNITY OF THE CENTURY 6 (2020), https://www.pwc.lu/en/sustainable-finance/esg-report-the-growth-opportunity-of-the-century.html [https://perma.cc/D3Q8-ST3K] (noting that by 2025, more than 50 percent of mutual fund assets in Europe may be held in ESG funds).

135. For a list of the firms included in the study and the study results, see 2021 Vandenbergh Final PEG Disclosure spreadsheet, *supra* note 43.

B. Empirical Study

1. Methodology

This study examined the most recent annual reports (10-Ks) filed with the SEC by the Fortune 100 companies, as well as the five largest firms in each of the petroleum refining, coal, and electric utility sectors.[136] The study examined only the annual reports of these companies, not sustainability reports or other disclosure documents.[137] The annual reports provide a valuable snapshot of the disclosure practices of these companies but are not presumed to be a representative sample of the annual reports of all publicly traded firms or of all the reports and statements issued by the firms studied. The annual reports provide an in-depth review, however, of the risks and opportunities a company deems financially material to its investors or otherwise subject to disclosure based on SEC regulations, guidance documents, and court interpretations of materiality.[138] The study examined each company's most recent annual report to assess whether the report included disclosures of risks posed by PEG climate initiatives.

To structure the assessment, the study examined whether firms disclose several general types of pressure that PEG initiatives may create for firms or pressure that PEG initiatives may induce one firm to transfer to other firms (disclosure of external advocacy group pressure; public, reputation or brand pressure; employee pressure; investor pressure; insurer pressure; lender pressure; and supply chain contract pressure). Given the dominant role of climate change in environmental and sustainability risks and governance, the study included climate-specific disclosures regarding these general types of pressure on firms as well as disclosures regarding environmental and sustainability issues generally. The study also examined disclosure of several specific PEG climate initiatives (disclosure of participation in or pressure from CDP reporting,[139] Science-based

136. *Id.*
137. *Id.*
138. *Id.*
139. CDP is a nonprofit organization that collects and publishes data from companies, cities, and states on climate change, water security, and deforestation. *See* CDP, *supra* note 92.

Target Initiative commitments, and Climate Action 100). These aspects of PEG initiatives do not capture all the ways in which private initiatives may create or reflect material financial risks for firms, but they include many of the most important potential sources of risk, and this research screen reduced the chance of overlooking important PEG climate disclosures.

The Fortune 100 companies conduct a wide range of businesses and operate in forty sectors.[140] Fortune ranks the Fortune 100 companies by total revenue for their respective fiscal years and includes only companies that are incorporated in and operate in the United States and file financial documents with a government agency.[141] This includes companies that file a 10-K with the SEC and mutual insurance companies that file with state regulators.[142] Only the companies with publicly traded equities that filed with the SEC were included in the study, and because the Fortune 100 firms include seven mutual insurance companies that do not file 10-Ks with the SEC, ninety-three firms were included in the study.[143] Fortune assumes that revenues are as reported by the companies, including revenues from discontinued operations when published,[144] and data for 2020 Fortune 100 companies are for the fiscal year that ended on or before January 31, 2020.[145]

The Fortune 100 only includes a handful of companies in the sectors most likely to be affected by climate change mitigation: the five largest petroleum refining firms are all in the Fortune 100, but no coal firms are in the Fortune 100 and only one electric utility company is in the Fortune 100.[146] To obtain an initial snapshot of disclosure patterns in these sectors, the five largest firms in each of these three sectors were examined.[147] The ranking of the top five utilities and petroleum refining companies was based on Fortune data and is measured by gross revenue, and the top five petroleum

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140. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.

141. *Methodology for Fortune 500*, FORTUNE, https://fortune.com/franchise-list-page/fortune-500-methodology-2020/ [https://perma.cc/MH85-3WFD].

142. *Id.*

143. *See Fortune 500*, FORTUNE, https://fortune.com/fortune500/2020/search/ [https://perma.cc/K4G6-S254].

144. *Methodology for Fortune 500*, *supra* note 141.

145. *Id.*

146. *See Fortune 500*, *supra* note 143.

147. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.

refining companies are all in the Fortune 100.[148] The top five coal companies were selected based on a U.S. Energy Information Administration ranking of the amount of coal produced by each company.[149] The coal companies were selected based on the amount of coal produced rather than gross revenue because the financial turmoil in the coal industry makes revenue a less valuable indicator of the importance of a firm within the sector. For all firms, the 10-Ks examined are the most recent 10-Ks filed by each company as of September 29, 2020.[150]

2. Results

The results demonstrate that many firms recognize and disclose the importance of the risks posed by PEG initiatives. Thirty-six of the ninety-three firms included in the study (39 percent) disclosed information about PEG initiatives.[151] As to the types of PEG disclosures, among the Fortune 100 firms, thirty firms in more than a dozen sectors disclosed public, reputation, or brand pressure regarding climate change (for example, AT&T, Archer Daniels Midland, Microsoft, Exxon Mobil, General Electric, Procter & Gamble, Target, and World Fuel Services).[152] Eleven firms in seven sectors disclosed

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148. *Id.*

149. Many of the largest coal producing firms are in or have recently emerged from bankruptcy, and, as of 2019, the entire market capitalization of the twelve largest firms in the coal industry was just over ten billion dollars. *See U.S. Coal Companies Continue to Lose Market Value*, INST. FOR ENERGY ECON. & FIN. ANALYSIS (Jan. 11, 2019), https://ieefa.org/u-s-coal-companies-continue-to-lose-market-value/ [https://perma.cc/TMB9-E6JH].

150. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.

151. *Id.*

152. *See, e.g.*, AT&T Inc., Annual Report (Form 10-K) (Feb. 19, 2020), https://www.sec.gov/Archives/edgar/data/0000732717/000156276220000064/t-20191231.htm [https://perma.cc/QK73-WPTW]; Archer-Daniels-Midland Co., Annual Report (Form 10-K) (Feb. 18, 2020), https://www.sec.gov/Archives/edgar/data/0000007084/000000708420000009/adm-20191231x10k.htm [https://perma.cc/W5PD-CYCK]; Microsoft Corp., Annual Report (Form 10-K) (July 30, 2020), https://www.sec.gov/Archives/edgar/data/0000789019/000156459020034944/msft-10k_20200630.htm [https://perma.cc/3G9V-TMRZ]; Exxon Mobil Corp., Annual Report (Form 10-K) (Feb. 26, 2020), https://www.sec.gov/Archives/edgar/data/0000034088/000003408820000016/xom10k2019.htm [https://perma.cc/D6FJ-WXZN]; Gen. Elec. Co., Annual Report (Form 10-K) (Feb. 24, 2020), https://www.sec.gov/Archives/edgar/data/0000040545/000004054520000009/ge10-k2019.htm [https://perma.cc/K9ZC-HQAC]; Procter & Gamble Co., Annual Report (Form 10-K) (Aug. 6, 2020), https://www.sec.gov/Archives/edgar/data/0000080424/000008042420000053/pg-20200630.htm [https://perma.cc/3DNU-BD9Z]; Target Corp., Annual Report (Form 10-K) (Mar. 11, 2020), https://www.sec.gov/Archives/edgar/data/00000

investor pressure (for example, American Airlines, JPMorgan Chase, Intel, and PepsiCo).[153] Ten firms in seven sectors disclosed supply chain contracting pressure (for example, Alphabet (Google), HP, Microsoft, Target, and Lowe's).[154] Nine firms in five sectors disclosed external advocacy group pressure (for example, Chevron, JPMorgan Chase, and PepsiCo).[155] One firm disclosed employee

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27419/000002741920000008/tgt-20200201.htm [https://perma.cc/R2F9-P8KF]; World Fuel Servs. Corp., Annual Report (Form 10-K) (Feb. 28, 2020), https://www.sec.gov/ix?doc=/Archives/edgar/data/0000789460/000162828020002590/a2019q410-k.htm [https://perma.cc/F5BY-WYXX]. The PepsiCo disclosure provided an example of climate and other environmental reputational pressure:

> There is also increased focus, including by governmental and non-governmental organizations, investors, customers and consumers on these and other environmental sustainability matters, including deforestation, land use, climate impact and recyclability or recoverability of packaging, including plastic. Our reputation can be damaged if we or others in our industry do not act, or are perceived not to act, responsibly with respect to our impact on the environment.

PepsiCo, Inc., 2019 Form 10-K, *supra* note 2, at 30.

153. *See, e.g.*, American Airlines Grp. Inc., Annual Report (Form 10-K) (Feb. 19, 2020), https://www.sec.gov/Archives/edgar/data/0000006201/000000620120000023/a10k123119.htm [https://perma.cc/R7RG-JPV8]; JPMorgan Chase & Co., 2019 Form 10-K, *supra* note 7; PepsiCo, Inc., 2019 Form 10-K, *supra* note 2; Intel Corp., 2019 Form 10-K, *supra* note 110.

154. For instance, Lowe's disclosed that "[w]e give considerable attention to how our products are created and to the people who make them. Through collaboration and established management systems, we monitor our suppliers' practices to secure high-quality products from suppliers who support worker rights and protect the environment." Lowe's Cos., Inc., Annual Report (Form 10-K), at 8 (Mar. 23, 2020), https://www.sec.gov/ix?doc=/Archives/edgar/data/60667/000006066720000036/form10k01312020.htm [https://perma.cc/N2HL-AJSC]. Alphabet included "enabling a responsible supply chain" in its sustainability disclosure. Alphabet, Inc., 2019 Form 10-K, *supra* note 4, at 8. Microsoft stated that it "launched a new initiative to use Microsoft technology to help our suppliers and customers around the world reduce their own carbon footprint." Microsoft Corp., 2019 Form 10-K, *supra* note 152, at 6.

155. JPMorgan Chase & Co., 2019 Form 10-K, *supra* note 7; FedEx Corp., Annual Report (Form 10-K) (July 20, 2020), https://www.sec.gov/Archives/edgar/data/0001048911/000156459020032775/fdx-10k_20200531.htm [https://perma.cc/5UL9-Y5Y4]. Chevron's disclosure mentions the potential effects of climate advocacy initiatives on investors and the market for its securities:

> organizations that provide information to investors on corporate governance and related matters have developed ratings processes for evaluating companies on their approach to ESG matters. Such ratings are used by some investors to inform their investment and voting decisions. Unfavorable ESG ratings may lead to increased negative investor sentiment toward Chevron and our industry and to the diversion of investment to other industries, which could have a negative impact on our stock price and our access to and costs of capital.

Chevron Corp., Annual Report (Form 10-K), at 21 (Feb. 21, 2020), https://www.sec.gov/Archives/edgar/data/0000093410/000009341020000010/cvx12312019-10kdoc.htm [https://perma.cc/9W5S-LBS4].

pressure (JPMorgan Chase).[156] No firms on the Fortune 100 list disclosed insurer pressure (although several coal firms did, as discussed below).[157] Two firms in the banking sector and two in the pipeline sector disclosed lender pressure.[158] Five firms in three sectors disclosed that they provide GHG emissions data to CDP (such as, Alphabet, Home Depot, and Intel).[159] No firms disclosed information relating to Climate Action 100 or SBTi.[160] Several firms disclosed information about other types of possible PEG climate issues, such as disclosures related to TCFD or participation in the Leadership in Energy and Environmental Design private building certification system (LEED), which may reduce GHG emissions through more efficient building design and operation (for example, American Airlines, FedEx, and Citigroup).[161]

As indicated by Table 1, in ten sectors, every firm's disclosure included a discussion of some type of PEG initiative.[162] For instance, all three airlines in the Fortune 100 reported public, reputational, or brand pressure.[163] One airline also reported pressure regarding procurement of renewable fuels,[164] and two reported investor

156. JPMorgan Chase & Co., 2019 Form 10-K, *supra* note 7; Best Buy Co., Annual Report (Form 10-K) (Mar. 23, 2020), https://www.sec.gov/Archives/edgar/data/0000764478/000076447820000017/bby-20200201x10k.htm [https://perma.cc/ZR7J-GZUP].

157. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.

158. Plains GP Holdings, L.P., Annual Report (Form 10-K) (Feb. 27, 2020), https://www.sec.gov/Archives/edgar/data/0001581990/000158199020000005/pagp-20191231.htm [https://perma.cc/TV6C-VH9Q].

159. *See, e.g.*, Alphabet, Inc., 2019 Form 10-K, *supra* note 4, at 8; Home Depot, Inc., Annual Report (Form 10-K), at 7 (Mar. 25, 2020), https://www.sec.gov/Archives/edgar/data/0000354950/000035495020000015/hd10k02022020.htm [https://perma.cc/45XV-B7JP]; Intel Corp., 2019 Form 10-K, *supra* note 110, at 14.

160. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.

161. *See, e.g.*, Am. Airlines Grp. Inc., 2019 Form 10-K, *supra* note 153; FedEx Corp., 2019 Form 10-K, *supra* note 155; Citigroup Inc., Annual Report (Form 10-K) (Feb. 21, 2020), https://www.sec.gov/Archives/edgar/data/0000831001/000083100120000031/c-12312019x10k.htm [https://perma.cc/6KGW-JJ79].

162. *See infra* Table 1.

163. *See* Am. Airlines Grp. Inc., 2019 Form 10-K, *supra* note 153, at 13; Delta Air Lines, Inc., Annual Report (Form 10-K), at 9-10 (Feb. 12, 2020), https://www.sec.gov/Archives/edgar/data/0000027904/000002790420000004/dal-20191231.htm [https://perma.cc/R5FK-C5DW]; United Airlines, Inc., Annual Report (Form 10-K), at 7 (Feb. 24, 2020), https://www.sec.gov/Archives/edgar/data/0000319687/000010051720000010/ual201910k.htm [https://perma.cc/BP35-D3W2].

164. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.

pressure.[165] Most of the disclosing firms and sectors appear to follow a pattern: they are either fossil-fuel-heavy or high GHG-emitting firms and sectors (for example, energy, mining, and crude oil production) or firms that may have high vulnerability to transition risks arising from PEG climate initiatives, such as business-to-consumer (B-to-C) firms and sectors (for example, food consumer products, household and personal products, mail, package, and freight delivery, and specialty retailers) or both (airlines).[166] The pattern is not uniform, however: the only firm in the industrial machinery sector, which is neither a particularly high GHG-emitting sector nor a B-to-C sector, also includes a PEG disclosure.[167]

Table 1. Sectors with PEG Climate Disclosure by All Firms (ten sectors/twenty firms)

Sector	**Number of Firms in Sector**
Airlines	3
Energy	1
Food Consumer Products	1
Household and Personal Products	1
Industrial Machinery	1
Mail, Package, and Freight Delivery	2
Mining, Crude Oil Production	1
Petroleum Refining	5
Semiconductors and Other Components	1
Specialty Retailers	4

A remarkable amount of heterogeneity exists in disclosures, with similar firms and similar sectors varying widely in their disclosure practices and many firms and sectors providing no disclosure at all.[168] As indicated by Table 2, in eleven sectors at least one firm disclosed information about PEG climate initiatives while at least

165. *Id.*
166. *Id.*
167. *Id.*
168. *Id.*

one other firm did not.[169] This occurred across several types of sectors and among firms within sectors.[170] B-to-C firms within sectors such as banking, general merchandise, and computer software varied in their reporting of PEG pressure.[171] For instance, as discussed at the outset, the two automakers included in the Fortune 100 varied in their reporting practices: GM included a PEG climate disclosure regarding its renewable power requirements for electricity procurement, but Ford did not.[172] Of the six insurance companies that filed annual reports with the SEC, only one (AIG) disclosed PEG climate risks.[173] Among the banks, Bank of America,[174] Citigroup, and JPMorgan[175] disclosed PEG pressures or PEG climate initiative risks, but Wells Fargo, Goldman Sachs Group, Morgan Stanley, and Capital One Financial did not.[176] In the annual reports of software and technology companies such as Apple and Google, the disclosure patterns regarding PEG climate transition risks varied widely even though both are among the global leaders in committing to aggressive climate goals and reducing corporate GHG emissions.[177] Pipeline companies are B-to-B firms but are also

169. *See infra* Table 2.

170. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.

171. *Id.*

172. *See* General Motors Co., 2019 Form 10-K, *supra* note 5, at 7; Ford Motor Co., 2019 Form 10-K, *supra* note 5.

173. *See* Am. Int'l Grp., Annual Report (Form 10-K), at 160 (Feb. 21, 2020), https://www.sec.gov/Archives/edgar/data/0000005272/000110465920023889/aig-20191231.htm [https://perma.cc/H3CJ-JPML].

174. Bank of Am. Corp., 2019 Form 10-K, *supra* note 8, at 16 (disclosing the risk of reputational harm from the "perception of [its] environmental, social and governance practices and disclosures").

175. JPMorgan Chase & Co., 2019 Form 10-K, *supra* note 7, at 25 ("Social and environmental activists are increasingly targeting financial services firms such as JPMorgan Chase with public criticism for their relationships with clients that are engaged in certain sensitive industries, including businesses whose products are or are perceived to be harmful to human health, or whose activities negatively affect or are perceived to negatively affect the environment, workers' rights or communities.").

176. Fortune lists Bank of America in the commercial banks sector but lists the other banking firms discussed in this paragraph in the closely related commercial and savings bank sector. *See Fortune 500*, *supra* note 143.

177. Alphabet stated that:

> We strive to build sustainability into everything we do from designing and operating efficient data centers, advancing carbon-free energy, creating sustainable workplaces, building better devices and services, empowering users with technology, and enabling a responsible supply chain. Google has been carbon neutral since 2007 and we are the largest corporate purchaser of renewable energy in

fossil fuel-heavy, and only one of the two pipeline companies in the Fortune 100 reported PEG climate pressure.[178]

Table 2. Sectors with Mixed PEG Climate Disclosure (ten sectors/ thirty-six firms)

Sector	**Firms Disclosing PEG/Firms in the Sector**
Banks: Commercial and Savings	3/7
Computer Software	1/2
Computers, Office Equipment	1/3
Food Production	1/2
General Merchandise	2/3
Insurance: Property and Casualty	1/6
Internet Services and Retailing	2/3
Motor Vehicles and Parts	1/2
Pipelines	1/4
Insurance: Life and Health	1/5
Telecommunications	1/4

For the three fossil-fuel-heavy sectors, a clear pattern emerged—the industries that *produce* most fossil fuels disclosed the risks posed by PEG climate initiatives, but the heaviest *users* did not.[179] The five petroleum-refining companies are also in the Fortune 100, and all reported some type of PEG climate pressure, as well as public, reputation, or brand pressure.[180] Four reported external advocacy group pressure, and three reported investor pressure.[181]

the world.

Alphabet, Inc., 2019 Form 10-K, *supra* note 4, at 8.

178. *See* Plains GP Holdings, L.P., 2019 Form 10-K, *supra* note 158, at 60.

179. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.

180. *See* Marathon Oil Corp., Annual Report (Form 10-K), at 4 (Feb. 20, 2020), https://www.sec.gov/Archives/edgar/data/0000101778/000010177820000023/mro-20191231x10k2019.htm [https://perma.cc/38QW-8LZG]; Valero Energy Corp., Annual Report (Form 10-K), at 11 (Feb. 26, 2020), https://www.sec.gov/Archives/edgar/data/0001035002/000103500220000007/vloform10-kx12312019.htm [https://perma.cc/5ESJ-35JL]; Phillips 66, Annual Report (Form 10-K), at 20-21 (Feb. 21, 2020), https://www.sec.gov/Archives/edgar/data/0001534701/000153470120000070/psx-2019123110k.htm [https://perma.cc/6WMJ-K3EF]; Exxon Mobil Corp., 2019 Form 10-K, *supra* note 152, at 42-43; Chevron Corp., 2019 Form 10-K, *supra* note 155, at 21.

181. *See supra* note 168.

Similarly, the five largest coal producers all disclosed investor pressure.[182] For instance, Peabody Coal disclosed investor, lender, and insurer pressure when it reported that

> the number and quantity of viable financing alternatives available to us may be significantly impacted by unfavorable lending and investment policies by financial institutions and insurance companies associated with concerns about environmental impacts of coal combustion, and negative views around our efforts with respect to environmental and social matters and related governance considerations could harm the perception of our company by certain investors or result in the exclusion of our securities from consideration by those investors.[183]

Peabody also noted the PEG climate pressure on the utilities that buy coal:

> Numerous activist groups are devoting substantial resources to anti-coal activities to minimize or eliminate the use of coal as a source of electricity generation, domestically and internationally, thereby further reducing the demand and pricing for coal, and potentially materially and adversely impacting our future financial results, liquidity and growth prospects.[184]

Overall, all five of the coal firms disclosed external advocacy group pressure, three reported insurer pressure, four reported lender pressure, and four reported public, brand, or reputation pressure.[185]

In contrast, none of the largest electric utilities disclosed PEG climate pressure.[186] Utilities emit large quantities of GHGs when they use coal or natural gas for electric power plants, and they have been the targets not only of national and subnational government regulatory measures, but also of numerous PEG climate initiatives, as the Peabody disclosure suggests.[187] The effect of the "numerous

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182. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.
183. Peabody Energy Corp., Annual Report (Form 10-K), at ii (Feb. 21, 2020), https://www.sec.gov/Archives/edgar/data/0001064728/000106472820000007/btu20191231-10k.htm [https://perma.cc/B3XP-DZ8G].
184. *Id.*
185. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.
186. *Id.*
187. *See* Peabody Energy Corp., 2019 Form 10-K, *supra* note 183, at ii.

activist groups" disclosed by Peabody is to create pressure on corporations to commit to renewable power. For instance, many of the utilities' largest corporate customers, such as Facebook and Microsoft, participate in REBA, which requires a commitment to procure 100 percent renewable power.[188] Other major corporate customers of the electric utilities have made major GHG reduction commitments that cannot be achieved without major reductions in the GHG emissions associated with electricity use.[189] PEG climate-initiative-based pressure thus might be expected to pose a material risk for some or all of these utilities, but neither Duke Energy, Excelon, NextEra Energy, Pacific Gas & Electric (PG&E), nor Southern disclosed PEG climate transition risks.[190] PG&E reported that it submits its emissions data to The Climate Registry, but although the Registry is a nonprofit organization, its directors are government officials so it does not qualify as a private-sector organization.[191] The utilities sector thus departs from the expectation that fossil-fuel-heavy industries will report PEG pressure.

188. *See* DAVID GARDINER & ASSOCS., NASHVILLE CARBON COMPETITIVENESS REPORT 1, 7-11 (2020), https://www.dgardiner.com/nashville-carbon-competitiveness/ [https://perma.cc/4VCT-DJLQ] (noting the climate commitments of two-thirds of the Fortune 100 and the implications for electric utilities). An example of a commitment discussed in an annual report is by Microsoft:

> We set an ambitious goal to reduce and ultimately remove Microsoft's carbon footprint. By 2030 Microsoft will be carbon negative, and by 2050 Microsoft will remove from the environment all the carbon the company has emitted directly or by electrical consumption since it was founded in 1975. We also launched a new initiative to use Microsoft technology to help our suppliers and customers around the world reduce their own carbon footprint.

Microsoft Corp., 2019 Form 10-K, *supra* note 152, at 6.

189. *See* DAVID GARDINER & ASSOCS., *supra* note 188, at 7-11.

190. *See* Exelon Corp., Annual Report (Form 10-K) (Feb. 11, 2020), https://www.sec.gov/Archives/edgar/data/0001109357/000110935720000053/exc-20191231x10k.htm [https://perma.cc/9ARU-4XNC]; Duke Energy Corp., Annual Report (Form 10-K) (Feb. 20, 2020), https://www.sec.gov/Archives/edgar/data/0001326160/000132616020000034/duk-20191231x10k.htm [https://perma.cc/TQ3B-XQ25]; Southern Co., Annual Report (Form 10-K) (Feb. 19, 2020), https://d18rn0p25nwr6d.cloudfront.net/CIK-0000092122/3c46261f-5a4f-454f-8b9f-20c1a5a8dd95.pdf [https://perma.cc/29BZ-GSTW]; NextEra Energy Partners, LP, Annual Report (Form 10-K) (Feb. 18, 2020), https://www.sec.gov/Archives/edgar/data/0001603145/000160314520000006/nep-12312019x10k.htm [https://perma.cc/XX7J-E2Y4].

191. *See* Pac. Gas & Elec. Co., Annual Report (Form 10-K) (Feb. 18, 2020), https://www.sec.gov/Archives/edgar/data/0000075488/000100498020000009/pcg-20191231.htm [https://perma.cc/ASE6-PHGE].

Finally, as indicated by Table 3, of the forty sectors included in the Fortune 100, nineteen sectors did not include a firm with at least one such disclosure.[192] For instance, Dow Chemical, the only firm in the chemicals sector, did not disclose PEG environmental or climate risks,[193] and no aerospace or defense companies disclosed these risks.

Table 3. Sectors with No PEG Climate Disclosure (twenty sectors/ forty-four firms)

Sector	**Number of Firms in Sector**
Aerospace and Defense	5
Apparel	1
Beverages	1
Chemicals	1
Construction and Farm Machinery	2
Diversified Financials	4
Electronics and Electrical Equipment	1
Entertainment	1
Food and Drug Stores	4
Health Care: Insurance and Managed Care	4
Health Care: Medical Facilities	1
Health Care: Pharmacy and Other Services	2
Information Technology Services	1
Network and Other Communications Equipment	1
Pharmaceuticals	4
Utilities	1
Wholesalers: Electronics and Office Equipment	1
Wholesalers: Food and Grocery	1
Wholesalers: Health Care	3

192. *See infra* Table 3.
193. *See*, Dow Chem. Co., Annual Report (Form 10-K) (Feb. 7, 2020), https://www.sec.gov/Archives/edgar/data/0000029915/000175178820000007/dowinc201910k.htm [https://perma.cc/ABB3-RBY9].

These non-disclosing firms and sectors do not follow an obvious pattern regarding the likelihood that PEG climate initiatives may pose material transition risks.[194] They vary in the amount of GHG emissions attributable to the firm or sector; some non-reporting firms are major global emitters of GHGs, and some reporting firms have much smaller emissions.[195] They also vary in the likely vulnerability to transition risks arising from PEG climate initiatives; they include both B-to-C firms and sectors that may be most vulnerable to naming and shaming campaigns directed at retail customers (for example, Coca-Cola in the beverages sector and Disney in the entertainment sector), as well as B-to-B firms and sectors that may be less subject to those campaigns but may still be vulnerable to investor or supply chain contracting pressure (for example, Tech Data in the electronics and office equipment sector).[196]

Overall, more than one-third of the Fortune 100 firms included PEG climate disclosures, and two of the three industry sectors most directly exposed to fossil fuels were the most likely to have disclosed PEG pressure.[197] The disclosures provided information about several types of PEG climate transition risks, with the most common among the Fortune 100 being public, reputation, or brand pressure, followed by investor pressure, supply chain contracting pressure, and external advocacy group pressure.[198] The drafters of annual reports for these firms thus appear to have concluded that PEG climate information is either financially material or otherwise important to include in a report to investors. But there is a remarkable lack of consistency among the Fortune 100 firms within the same sector and between similar sectors.[199] The lack of consistency also exists among the fossil-fuel-heavy sectors, with differences existing

194. *See, e.g.*, Coca-Cola Co., 2019 Form 10-K, *supra* note 3; Walt Disney Co., Annual Report (Form 10-K) (Nov. 20, 2019), https://www.sec.gov/Archives/edgar/data/0001744489/000174448919000225/fy2019q410k.htm [https://perma.cc/5CAD-MQW4]; Tech Data Corp., Annual Report (Form 10-K) (Mar. 25, 2020), https://www.sec.gov/Archives/edgar/data/0000790703/000079070320000006/fy2010kdocumentclassic.htm [https://perma.cc/RKD2-MPE5].

195. 2021 Vandenbergh Final PEG Disclosure Spreadsheet, *supra* note 43.

196. *Id.*

197. *Id.*

198. *Id.*

199. *Id.*

between the petroleum and coal sectors on the one hand, and electric utilities on the other.[200]

The heterogeneity in disclosures does not follow simple patterns based on the characteristics of firms and sectors. Many B-to-C firms disclosed PEG climate pressure, as might be expected given their exposure to public pressure from retail customers, but some did not.[201] Some major banks disclosed, and some did not.[202] One automaker disclosed, the other did not. One internet firm disclosed, the other did not.[203] Many B-to-B firms did not disclose PEG climate pressure, as might be expected given their insulation from retail customer pressure, but some did.[204] Either remarkable differences exist among firms that appear to be similarly situated financially or disclosure practices are inconsistent.

II. THE SECURITIES REGULATORY REGIME

Part II explores whether the regulations, guidance documents, and reports generated by the financial regulatory regime explain the heterogeneity in firm disclosures identified in Part I. This Part begins with a discussion of federal securities laws and the 2010 Guidance and then turns to the 2020 CFTC and Federal Reserve statements on climate disclosures. It then examines the disclosure recommendations of two leading public-private hybrid regimes, TCFD and SASB, and it closes with a brief review of other disclosure regimes.

A. Federal Securities Law

The '34 Act governs much of the periodic federal securities disclosure regime, including the SEC's authority to compel company disclosures to investors,[205] and the '33 Act requires that investors receive financial information about companies offered for public sale

200. *Id.*
201. *Id.*
202. *Id.*
203. *Id.*
204. *Id.*
205. 15 U.S.C. § 78d(a)-(b). Section 4 of the '34 Act established the SEC, which is responsible for enforcing securities laws. *Id.* § 78d(a).

and prohibits deceit, misrepresentations, and other fraud in the sale of securities.[206] The SEC promulgates and enforces regulations governing disclosure requirements under section 13 of the '34 Act.[207] Section 13 designates as "reporting companies" those firms that have registered publicly held securities and those of a certain size, and it requires periodic disclosures in the form of annual reports (10-K) and quarterly reports (10-Q), as well as prompt reporting of certain important events (8-K).[208] Information that would facilitate investors' ability to assess whether a company's security is a good investment is required to be included or incorporated into these filings.[209] The required disclosure includes information about the company's officers and directors, the company's line of business, audited financial statements, and a management discussion and analysis section.[210] Sections 18(a) and 10(b) of the '34 Act apply to all disclosures and prohibit false or misleading statements made in documents filed with the SEC.[211] Violations create exposure if they are material: if an investor bought or sold a security in reliance on such statement, and the price of the security was affected by the statement.[212]

Environmental information is subject to the reporting standards of the general statutory and regulatory requirements discussed above, plus the specific reporting obligations for environmental information in 17 C.F.R. Part 229.[213] The Part 229 regulations require companies to disclose the material effects of compliance with

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206. *Id.* §§ 77g(c), 77k.

207. *Id.* § 78m.

208. *Id.*

209. *Id.*

210. *Id.*

211. *Id.* §§ 78o, 78r.

212. *Id.*

213. 17 C.F.R. § 229.101(c) (2020). These regulations were amended in October 2020 to replace the enumerated disclosures list adopted in 1973 with a non-exhaustive list of disclosure topic examples. *Id.* The regulation now requires: (1) "(i) [r]evenue-generating activities, products and/or services"; "(ii) [s]tatus of development efforts for new or enhanced products, trends in market demand and competitive conditions; (iii) [r]esources material to ... business"; "(iv) ... any material portion of the business that may be subject to renegotiation" of contracts at the election of the Government; "(v) [t]he extent to which the business is or may be seasonal"; (2) "(i) [t]he material effects that compliance with government regulations, including environmental regulations, may have upon the capital expenditures"; and "(ii) ... the registrant's human capital resources." *Id.*

environmental laws, costs of environmental litigation with potential liability exceeding a specific threshold (formerly $100,000, but after the SEC adopted regulatory changes in 2020, $300,000 or more), known trends, and events or uncertainties known to management reasonably likely to have a material effect on the registrant's financial condition or operating results.[214] The Part 229 regulation also requires disclosure of any additional material information necessary to make those required disclosures not misleading in light of the circumstances under which they are made.[215]

In the 2010 Guidance, the SEC clarified the environmental regulatory requirements regarding climate change by identifying four areas that may trigger reporting: (1) the impact of legislation or regulation; (2) the impact of international accords; (3) the indirect consequences of regulation or business trends; and (4) the physical impacts of climate change.[216] The Guidance does not depart from the materiality principle of financial disclosures, meaning that if a company concludes that an issue is not material to its investors, it need not be reported.[217] The fourth of these areas addresses physical risks, which differ among industries but may include risks associated with assets that are exposed to climate insecure areas, such as places with rising sea levels or increases in natural disasters.[218] For example, a firm that relies on docking facilities may be adversely affected by rising sea levels, or a firm that relies on grain or other agricultural products may be adversely affected by increased severity of heat waves, droughts, and flooding.[219] The disclosure of physical risks is a focus of government, private, and hybrid disclosure initiatives,[220] but it is beyond the scope of this Article.

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214. *Id.* § 229.103 (2020). This regulation was revised in October 2020 to implement a disclosure threshold of environmental proceedings to which the government is a party from $100,000 to $300,000, but also allows the company to select a different threshold reasonably designed to result in disclosure of material environmental proceedings, not to exceed $1 million or 1 percent of the company's current assets. *Id.*

215. *Id.*

216. SEC 2010 Guidance, *supra* note 20, at 6295-97.

217. *See id.*

218. *See id.* at 6296-97.

219. PEG climate initiatives may increase or decrease firms' ability to adapt to physical climate change risks and should be accounted for when they have material effects, but any effect PEG initiatives may have on adaptation disclosure is beyond the scope of this Article.

220. *See, e.g.*, SEC 2010 Guidance, *supra* note 20, at 6296-97.

Transition risks are the focus of this Article and are discussed in the first three areas identified in the 2010 Guidance.[221] The first and second areas identified in the 2010 Guidance address the transition risks arising from domestic and international public governance; thus, the SEC follows the assumption that transition risks are essentially the same as government regulatory risks.[222] As identified by the SEC, these include risks associated with environmental laws and regulations and information about changing public governance requirements in the United States and abroad.[223] They also include litigation risks arising under environmental statutes, which for climate change principally can be expected to occur under the Clean Air Act regulations limiting or requiring the reporting of GHG emissions.[224] During the Trump administration, the U.S. Environmental Protection Agency (EPA) repealed or withdrew most of the Obama-era Clean Air Act climate regulations, but the Biden administration EPA engaged in re-regulation on several topics.[225] Disclosure of these risks enables investors to better understand which firms and sectors are most vulnerable to government climate mitigation measures, such as a carbon tax or restrictions on emissions from electric power plants or motor vehicles, and to understand which firms may be best situated to benefit from these measures. The Marathon Petroleum Corporation disclosure discussed at the outset provides an example of a common discussion of these types of regulatory transition risks: "Meeting the requirements of evolving environmental or other laws or regulations may reduce our refining and marketing margin and may result in substantial capital expenditures and operating costs that could materially and adversely affect our business, financial condition, results of operations and cash flows."[226] There is no indication in the review of Fortune 100 and fossil-fuel-heavy firm disclosures that these firms

221. *Id.* at 6295-96.

222. *Id.*

223. *Id.*

224. *See generally* Massachusetts v. Env't Prot. Agency, 549 U.S. 497 (2007).

225. *See* COLUM. L. SCH. SABIN CTR. FOR CLIMATE CHANGE L., CLIMATE REREGULATION IN A BIDEN ADMINISTRATION 1-4, 17-20, 41-44, 46-49 (2020) (identifying potential Biden administration regulatory initiatives regarding climate change); ENV'T L. INST., *supra* note 116, at 28-30 (identifying potential Biden administration regulatory initiatives regarding climate change).

226. Marathon Petroleum Corp., 2019 Form 10-K, *supra* note 49, at 32.

fail to recognize the existence of regulatory transition risks, although the disclosures are often general and formulaic.[227]

The third area identified in the 2010 Guidance addresses the indirect consequences of regulation or business trends, and this is where the 2010 Guidance misses the opportunity to recognize and account for PEG climate transition risks.[228] The Guidance identifies several specific types of "[i]ndirect [c]onsequences of [r]egulation or [b]usiness [t]rends" and notes that "[l]egal, technological, political and scientific developments regarding climate change may create new opportunities or risks for registrants. These developments may create demand for new products or services, or decrease demand for existing products or services."[229] The Guidance also identifies the following examples:

- Decreased demand for goods that produce significant greenhouse gas emissions;
- Increased demand for goods that result in lower emissions than competing products;
- Increased competition to develop innovative new products;
- Increased demand for generation and transmission of energy from alternative energy sources; and
- Decreased demand for services related to carbon based energy sources, such as drilling services or equipment maintenance services.[230]

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227. In restating the concept of climate transition risks, Citigroup provides an example of how the drafters of securities disclosures view transition risks as essentially including regulatory and market risks, as opposed to PEG climate risks: "transition risks (risks related to regulatory, legal, technological and market changes from a transition to a low-carbon economy)." Citigroup, Inc., 2019 Form 10-K, *supra* note 161, at 294. In contrast, General Electric's disclosure acknowledged the importance of private governance regarding climate risk, noting the risks arising from "the adoption of climate change-related policies (such as carbon taxes, cap and trade regimes, increased efficiency standards or incentives or mandates for particular types of energy) at the national and sub-national levels or by private actors." Gen. Elec. Co., 2019 Form 10-K, *supra* note 152, at 51.

228. *See* SEC 2010 Guidance, *supra* note 20, at 6296.

229. *Id.*

230. *Id.* (footnote omitted).

This discussion in the 2010 Guidance is sufficiently broad to encompass many PEG climate initiatives, and it captures some of the effects of these initiatives. But it is too vague to perform the function of a guidance—to call attention to disclosure obligations that the company might otherwise miss, particularly if its lawyers, accountants, and business managers were trained in the era when government regulatory risks and business or market trends adequately captured almost all meaningful business risks. Material financial effects that arise from PEG initiatives do not fit neatly into the term "[i]ndirect [c]onsequences of [r]egulation or [b]usiness [t]rends" because PEG initiatives are neither the consequence of government regulation nor of business trends as ordinarily conceived.[231] PEG climate initiatives are not government regulatory phenomena, since they do not occur as a result of government action and often fill gaps in government action or even occur in response to efforts by government to discourage climate mitigation. An example of gap-filling is the "We Are Still In" movement in which corporations, cities, states, and other organizations expressed an intent to meet the goals of the Paris Agreement even absent participation by the U.S. government during the Trump administration.[232] Another example of gap-filling is that corporate-NGO collaborations to promote renewable power, such as REBA, and corporate climate commitments such as those made by Google and Facebook, have facilitated substantial growth in renewable power, even in states that are either on the sidelines or actively hostile to climate mitigation.[233] These PEG climate initiatives create substantial risks and opportunities for electric utilities, but a utility disclosure that only revealed national or subnational government regulatory pressure over the last four years would not confront the risks arising from PEG climate initiatives that might induce its largest current or new customers to insist on renewable power.

Nor are the material effects of PEG climate initiatives the result of business trends as ordinarily conceived.[234] PEG climate initiatives

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231. *See id.*

232. *See* Leonard, *supra* note 30, at 10559.

233. *See* Vandenbergh et al., *supra* note 108, at 3-4.

234. In addition, whether PEG climate initiatives and business trends are the same, PEG climate risks are, at a minimum, a distinctive type of business trend that deserves special attention in the 2020 Guidance because PEG initiatives can create financial risks and

arise from widespread social preferences (for example, support for climate mitigation) that drive employees, retail customers, corporate customers, investors, lenders, and insurers to support GHG-reducing actions, often initiated or facilitated by environmental advocacy groups.[235] Of course, these preferences ultimately have a monetary effect on the firm and in that way are a form of or result in a business trend. However, the market effects are often the result of PEG climate initiatives, and the inconsistent PEG disclosures in annual reports suggest that a simple focus on business trends can lead firms to overlook these types of risks. For instance, employee and investor pressure may induce a firm to adopt a procurement policy that reduces supply chain carbon emissions. An analysis of a good or service that only focuses on the quality of that good or service—rather than the carbon emissions associated with its production and shipping, or the climate commitments of its buyers and suppliers—will miss the importance of the provenance of the good and thus miss a critical aspect of whether the good will be attractive to the many companies that have committed to reduce the carbon emissions from their supply chains.[236] Similarly, as discussed in Part I above, a light bulb manufacturer that is only focused on regulatory risk and business trends might overlook the implications of a company making and implementing an ESG or climate commitment.[237] The vulnerability of Walmart's light bulb suppliers after its decision to make a low-cost LED light the house brand is an example.[238] The rapid transition to LED bulbs, which has resulted in the first sustained reduction in household per capita electricity use since the Second World War and a reduction of 127 million tons of GHG emissions per year, has substantially affected the market for

opportunities easily missed if the disclosure writer follows only a narrow view of business trends. In other words, revisions to the 2020 Guidance and the disclosure regulatory regime more generally are valuable whether PEG climate initiatives pose risks that are inherently different from business trends or are an increasingly important new form of business trend. Inherently different or not, more precision and attention to these types of climate-related influences will foster more valuable disclosure for investors, business managers, and public and private policymakers.

235. *See, e.g.*, Leonard, *supra* note 30, at 10559.

236. *See* CARBON TRUST, *supra* note 112, at 7, 11; *Supply Chain*, CDP, https://www.cdp.net/en/supply-chain [https://perma.cc/S8VS-82SD].

237. *See supra* Part I.A.3.

238. *See supra* Part I.A.3.

light bulbs in the United States and likely has had a material effect on several light bulb suppliers.[239]

The 2010 Guidance thus does not address the core insight that is critical to understanding and disclosing the material transition risks arising from PEG climate initiatives: the cause of the changes in demand discussed in the examples identified in the 2010 Guidance arise not only from standard supply and demand effects, but also from initiatives that drive changes in supply and demand for nonmonetary reasons, such as the climate implications of a business's operations or products. As discussed above, firms require a legal license to operate, and the government regulatory aspects of that legal license are accounted for in the public governance risk areas discussed in the 2010 Guidance.[240] The guidance also reflects the fact that firms must achieve monetary success by accounting for business trends in the form of changes in supply and demand.[241] But the material effects on firms arising from PEG climate initiatives are the product of a firm's social license to operate, not of government regulatory or standard business trends.[242]

Although the distinction between the effects of business trends and the effects of PEG climate initiatives may seem small for those not following climate mitigation initiatives closely, the distinction may have important effects on disclosure of material issues by public firms and on the success of PEG climate initiatives. For instance, a utility that simply uses projections of the price of renewable power from the Department of Energy's Energy Information Administration or from the International Energy Agency might easily miss the importance of industry-NGO collaborations such as REBA, or NGO naming and shaming campaigns such as the Sierra

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239. *See* Vandenbergh et al., *supra* note 108, at 2, 4; Davis, *supra* note 130, at 1098-99 (noting a decline in household electricity use following Walmart's LED initiative); Gilligan & Vandenbergh, *supra* note 130, at 101403 (calculating that Walmart's LED light bulb initiative reduced U.S. GHG emissions by 127 million tons per year).

240. *See* SEC 2010 Guidance, *supra* note 20.

241. *See id.*

242. *See, e.g.*, Gunningham et al., *supra* note 79, at 308-10 (noting that firms need a social license to operate). In September 2021, the SEC released a model information request letter that takes an important step toward identifying the need for firms to disclose the risks and opportunities of PEG initiatives, but the SEC stopped short of fully exploring the differences between regulatory transition risks, traditional market risks, and risks arising from PEG initiatives. *See* U.S. Sec. & Exch. Comm'n, *supra* note 57.

Club's RE100, in driving corporate demands for renewable power.[243] A coal company that discloses only the legal risks and business trends arising during the Trump administration might reasonably suggest in its securities disclosures that it was entering a period of more favorable demand for its product, but it would have been wrong. This is not because it would have missed the repeal of many Obama-era regulatory requirements on coal-fired power plants, but because it would have missed the movement by utilities and their customers away from coal and toward natural gas and renewable power. That movement, in turn, is the product of a complex set of factors, including cheap natural gas and the anticipation of future government regulation, but it is not fully understood without accounting for the fact that roughly two-thirds of the Fortune 100 companies have made major climate commitments that are inconsistent with a carbon-intensive electric grid.[244] Similarly, a utility that failed to assess the climate commitments of its corporate customers might fail to anticipate and disclose these customers' efforts to reduce demand through energy efficiency.[245]

The importance of PEG climate initiatives extends beyond disclosures in carbon-intensive sectors such as coal, petroleum refining, and electric utilities. For instance, as discussed above, if a firm that sells products to major retailers only focuses on conventional regulatory risks or business trends, then it might easily overlook the effects of Walmart's Project Gigaton, in which Walmart is working with the Environmental Defense Fund, World Wildlife Fund, and other advocacy groups to commit to reduce its GHG emissions from its supply chain by a billion tons by 2030.[246] A supplier to Walmart may move from a competitive advantage based on price to a competitive disadvantage based on the carbon footprint of its products if it fails to assess the social license pressure on Walmart and

243. *See, e.g.*, *Our Vision*, RENEWABLE ENERGY BUYER'S ALL., https://rebuyers.org/about/vision/ [https://perma.cc/Y9ZW-ELKM].

244. *See* DAVID GARDINER & ASSOCS., *supra* note 188, at 5, 7 (noting the climate commitments of two-thirds of the Fortune 100 and the implications for electric utilities).

245. For an example of a utility that has identified reduced demand via energy efficiency as a material threat, see Vandenbergh et al., *supra* note 108, at 23-24 (discussing the disclosures by the Tennessee Valley Authority, which was not a part of the empirical analysis for this Article).

246. *See supra* Part II.A; PROJECT GIGATON, *supra* note 36.

Walmart's subsequent supply chain contracting initiative. Supply chain initiatives, in which firms make and enforce climate commitments that are applicable to the entire value chain, are not unique to Walmart. They are growing rapidly, and these initiatives often involve combinations of publicly traded firms, dark green advocacy groups, and bright green advocacy groups, such as CDP, that play a data disclosure and expertise role rather than a direct advocacy role.[247] In this way, PEG climate initiatives can create important transition risks and opportunities for a firm that are distinct from pure regulatory or market risks.

B. Commodities Futures Trading Commission

In response to concerns about the lack of transparency regarding financial climate risks, in 2020, the CFTC issued a report titled, "Managing Climate Risk in the U.S. Financial System."[248] The report represents an important recognition of climate risks by the CFTC, and it recommended strengthening disclosure requirements for corporate climate risks by expanding the meaning of "material" to include long-term risks and including risks to companies posed by future policies.[249] As to disclosure of PEG climate transition risks, however, the report did not identify these initiatives as a specific risk to companies' bottom lines.[250] The report cited a 2018 study by the Government Accountability Office that examined climate risk disclosures.[251] The study found that some companies use boilerplate language disclosing "reduced demand for our products" and note that they are "committed to complying with all Greenhouse Gas ...

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247. *See* CARBON TRUST, *supra* note 112, at 3, 5; *supra* Part I.A.

248. CFTC Report, *supra* note 22, at 127-28.

249. *Id.* For context on the CFTC report from an environmental perspective, see Mindy Lubber, *We Need a Federal Climate Risk System*, ENV'T F., Nov./Dec. 2020, at 25 (noting comments of Mindy Lubber, Ceres CEO and member of the CFTC subcommittee that drafted the CFTC Report, regarding the need for CFTC, SEC, and the Federal Reserve to expand climate disclosures). According to Robert Litterman, chair of the panel that produced the report, "[t]his is the first time a government entity has looked at the impacts of climate change on financial markets in the U.S. ... Rather than saying, 'What's the science?' this is saying, 'What's the financial risk?'" Coral Davenport & Jeanna Smialek, *Federal Report Warns of Financial Havoc from Climate Change*, N.Y. TIMES (Sept. 8, 2020), https://www.nytimes.com/2020/09/08/climate/climate-change-financial-markets.html [https://perma.cc/2QZB-TMAJ].

250. *See generally* CFTC Report, *supra* note 22.

251. *Id.* at 91-92.

emissions mandates," and others disclose the costs of complying with regulations and disclose the specific metrics of their emissions.[252] Neither the report nor the study called attention to the lack of disclosures of material PEG climate transition risks.[253]

C. Federal Reserve

In November 2020, the Federal Reserve signaled its concern about the financial impacts of climate change for the first time. In the November 2020 quarterly report, the Federal Reserve provided an example of the types of risks that may arise:

> Some residential and commercial properties will be subject to acute hazards such as storm surges associated with rising sea levels and more intense and frequent hurricanes. Continued productive use of these properties would require investment and adaptation. As inundations or storm surges become more frequent, the expected value of exposed real estate may decrease, which may in turn pose risks to real estate loans, mortgage-backed securities, the holders of these loans and securities, and the profitability of nonfinancial firms using such properties.[254]

The Federal Reserve noted that these types of developments could produce abrupt price shifts with adverse effects on the economy.[255] To address these types of risks, the report notes:

> Continued research into the interconnections between the climate, the economy, and the financial sector could strengthen knowledge of transmission, clarify linkages and exposures, and facilitate more efficient pricing of risk. Outside the financial system, efforts to mitigate or adapt to the physical effects of climate change through technological advances and policy changes could also reduce climate risks in the long run.[256]

252. *Id.*
253. *See generally id.*
254. Federal Reserve Report, *supra* note 23, at 59.
255. *Id.*
256. *Id.*

These statements represent major progress in the thinking and public discussion about climate risks by one of the most influential actors in the financial system.

As to PEG climate transition risks, though, note the underlying assumption: the question is whether an influence on the financial system is "[o]utside the financial system" or presumably "inside the financial system," and the factors that are outside the financial system are "technological advances" and "policy changes."[257] Where does the social license to operate, and, as to climate change, where do PEG climate transition risks fit in this analytical framework? There is little signal in the report that the Federal Reserve views PEG climate initiatives as a form of "policy."[258] It certainly does not explicitly include PEG climate initiatives in what it discusses as factors that are inside the economy, nor does it explicitly call out the importance of "[o]utside" influences such as private initiatives, even if they involve major pressure on investors, lenders, insurers, and corporations in various sectors that arise from private organizations seeking to achieve climate change mitigation rather than from government regulators.[259]

D. Public-Private Hybrid and Private Disclosure Regimes

In addition to disclosures under U.S. securities laws, firms face pressure to make more in-depth disclosures under several public-private hybrid and private initiatives that track data related to climate change and other environmental issues. Among the most widely followed are the climate disclosures identified by the TCFD and SASB.[260] The TCFD is a hybrid, with governmental and private

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257. *Id.*

258. *See id.*

259. *See id.*

260. For a recent advocacy group report, see generally VEENA RAMANI, CERES, ADDRESSING CLIMATE AS A SYSTEMIC RISK (2020) https://www.ceres.org/sites/default/files/reports/2020-06/Financial%20Regulators%20FULL%20FINAL.pdf [https://perma.cc/TE6C-BJE6] (providing fifty recommendations for improved climate risk disclosure). The TCFD and SASB disclosure regimes are also important because they demonstrate that many firms already have the information necessary to make climate disclosures that include a broad accounting for climate transition risks, and many are prepared to do so without a great deal of additional cost or coercion. This suggests that little downside exists to more explicit SEC securities disclosure guidance. The CDP (formerly the Carbon Disclosure Project) and the Science Based Targets

sector participants, whereas SASB is comprised of for-profit and nonprofit private organizations, although it has included substantial governmental participation.[261]

The TCFD was established in 2015 by the Financial Stability Board (FSB), which the G20 Finance Ministers and Central Bank Governors asked to review how the financial sector should account for climate-related issues.[262] The FSB is an international body consisting of sixty-eight members, including ministries of finance and central banks from twenty-four countries and the European Union, and international supervisory and regulatory authorities, including the IMF and the World Bank.[263] The FSB has made recommendations about the global financial system, and the TCFD, which includes public- and private-sector representatives, such as Unilever, the Singapore Exchange, and the Industrial and Commercial Bank of China,[264] has developed recommendations for climate-related disclosures with the goal of enabling stakeholders to better understand the financial system's exposure to climate-related risks.[265]

The TCFD, like the SEC, has categorized climate risks as arising from transition risks and physical risks.[266] The TCFD takes a broader approach to transition risks than the SEC 2010 Guidance, however, by defining transition risks to include not only policy and legal risks, technology risk, and market risk, but also reputation risk.[267] PEG climate transition risks are implicitly accounted for in market

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initiative (SBTi) require disclosures of emissions but not disclosures of physical or transition risks. *See* CARBON TRUST, *supra* note 112, at 11; *About Us*, *supra* note 105.

261. *See generally Task Force Members*, TASK FORCE ON CLIMATE-RELATED FIN. DISCLOSURES, https://www.fsb-tcfd.org/members/ [https://perma.cc/82Q9-66QM]; *Standards Board Members*, SASB, https://www.sasb.org/about/governance/standards-board/ [https://perma.cc/DKG9-92T9].

262. Nathan Reiff, *Task Force on Climate-Related Financial Disclosures (TCFD)*, INVESTOPEDIA (Aug. 6, 2021), https://www.investopedia.com/what-is-the-tcfd-task-force-on-climate-related-financial-disclosures-4771379 [https://perma.cc/B4R7-H6RK].

263. *See generally Members of the Financial Stability Board*, FIN. STABILITY BD., https://www.fsb.org/about/organisation-and-governance/members-of-the-financial-stability-board/ [https://perma.cc/H6JZ-D8EX] (listing members as of September 23, 2021).

264. *See Task Force Members*, *supra* note 261.

265. The TCFD's goal is to promote more informed investment, credit, and insurance underwriting decisions. *See generally* TCFD, TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES: OVERVIEW (2021) [hereinafter TCFD Overview], https://assets.bbhub.io/company/sites/60/2021/10/TCFD_Booklet_FNL_Digital_March-2020.pdf [https://perma.cc/82Q9-66QM].

266. *See generally id.*

267. TCFD 2017 Report, *supra* note 24, at 5-6.

and reputation risks, including shifts in supply and demand and customer perceptions of an organization's contribution to the transition to a lower-carbon economy.[268]

Although the TCFD disclosure regime includes a broader approach to transition risks than the 2010 SEC Guidance, it takes a narrow view of how PEG climate initiatives pose risks to companies' financial health.[269] The TCFD identifies the transition risks of moving towards a green economy and focuses on two types of risks: (1) market risks, such as changing customer behavior, unexpected cost shifts, and re-pricing of assets; and (2) reputation risks, such as stigmatization of certain sectors and stakeholder concern.[270] By identifying reputation risks and the importance of stigma, the TCFD more explicitly identifies the types of transition risks created by PEG climate initiatives than the SEC and other federal entities, but this language is vague and does not encompass risks arising from several other types of PEG climate initiatives, such as divestment campaigns, renewable power campaigns, and supply chain contracting requirements.[271] These types of initiatives can have material effects on companies but are not forms of reputation risks; do not necessarily involve stigmatization; and are not highlighted to the same extent as risks posed by laws, regulations, and the physical effects of climate change. The TCFD recommendations thus represent an improvement but still fall into the same trap as the SEC guidance: identifying public governance and physical effects of climate change as the principal risks of climate change and calling

268. *Id.*

269. Melissa Scanlan has noted that the European Commission has finessed this issue by interpreting the TCFD recommendations broadly. *See* Scanlan, *supra* note 12, at 31-32. She observes that the European Commission's interpretation of the European Union's Non-Financial Disclosure Directive requires companies not only to disclose material impacts climate change may have on the company, but also the material impacts the company may have on climate change. *Id.* (quoting Eur. Comm'n Guidelines, at 7-8; and then citing TCFD 2017 Report, at ii, 5-6). As Scanlan points out, unlike the discussion and examples provided by the SEC and TCFD, examples provided in the EU Guidelines include disclosure of the company's direct GHG emissions and the recommendation to "[d]escribe any climate-related targets the company has set as part of its policies, especially any GHG emissions targets, and how company targets relate to national and international targets and to the Paris Agreement in particular." *Id.* at 34 (quoting Eur. Comm'n Guidelines, at 14) (alteration in original).

270. *See* TCFD Overview, *supra* note 265, at 12.

271. *See id.*

only limited attention to the transition risks posed by PEG climate initiatives.

The TCFD recommends that companies "[d]isclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning."[272] The guidance for these disclosures states that organizations should consider discussing: "where they believe their strategies may be affected by climate-related risks and opportunities; how their strategies might change to address such potential risks and opportunities; and the climate-related scenarios and associated time horizon(s) considered."[273] Again, the language is broad enough to include risks that may occur from climate-related PEG initiatives that affect the company, but it does not include examples of PEG initiatives. The transition risks identified are: policy and legal ("pricing of GHG emissions[,] [e]nhanced emissions-reporting obligations[,]" regulation of products and services), technology ("[s]ubstitution of existing products and services[,] ... [u]nsuccessful investment in new technologies[,]" transition costs), market ("[c]hanging customer behavior[,] [u]ncertainty in market signals[,] [i]ncreased cost of raw materials"), and reputation ("[s]hifts in consumer preferences[,] [s]tigmatization of sector, [i]ncreased stakeholder concern or negative stakeholder feedback").[274] The guidance also does not identify PEG climate initiatives as a likely source of the risks. For example, the TCFD report identifies decreased demand for goods or services and reduction in capital availability as climate-related potential financial impacts but does not note that these impacts are often the result of a PEG initiative such as a divestment, naming and shaming, supply chain contracting, or other PEG climate campaigns.[275]

Along with TCFD, SASB plays a leading role in highlighting the importance of identifying and disclosing climate risks. SASB is an

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272. TCFD 2017 Report, *supra* note 24, at 21.

273. *Id.*

274. *Id.* at 10. Sarah Light and Eric Orts have noted that public and private governance deploy similar regulatory instruments or tools. Light & Orts, *supra* note 27, at 2-3. The fact that many firms do not disclose PEG climate transition risks when similarly situated firms do suggests that conceptual barriers may be limiting the assessment and disclosure of private governance-based risks.

275. *See* TCFD 2017 Report, *supra* note 24, at 10.

independent standards board that operates through sector-based committees, with a board composed of representatives from university professors, accountants, attorneys, and corporate managers.[276] SASB identifies sustainability issues that are likely to affect the financial condition of companies and recommends standards based on the company and industry.[277] The SASB industry-specific standards provide examples of the expected types of assessment and disclosure, such as the SASB discussion of disclosures for the petroleum refining sector, while including broad language identifying areas for disclosure including "risk to reputation due to entity's stance and actions related to the legal and regulatory environment ... and risk of misalignment with the expectations of customers, investors, and other stakeholders."[278] Although this language does not expressly identify PEG climate initiatives, it provides perhaps the best identification of drivers of PEG climate initiatives, which certainly draw on and stimulate the climate-related expectations of customers, investors, and other stakeholders.[279] The standards also recommend disclosure of long-term and short-term business strategies for emissions reduction and "how price and demand for coal and/or climate regulation influence the capital expenditure strategy for exploration, acquisition, and development of assets."[280] In short, the standards obliquely signal the importance of PEG climate initiatives, but they do not compel coal companies to discuss the risks that divestment campaigns and other initiatives will reduce the availability of funds for coal-related projects.

276. *See Standards Board Members*, *supra* note 261.

277. *See generally SASB Materiality Map*, SASB, https://materiality.sasb.org/ [https://perma.cc/FJW4-3YG9].

278. SASB, OIL & GAS—EXPLORATION & PRODUCTION: SUSTAINABILITY ACCOUNTING STANDARD STANDARDS 45-46 (2018), https://www.sasb.org/wp-content/uploads/2018/11/Oil_Gas_Exploration_Production_Standard_2018.pdf [https://perma.cc/K6U3-V65F].

279. SASB's disclosure recommendations are largely focused on sustainability disclosure topics. For example, its disclosure standards for coal operations includes nine topics: GHG emissions, water management, waste management, biodiversity impacts, rights of indigenous peoples, community relations, labor relations, workforce health and safety, and reserves valuation and capital expenditures. SASB, COAL OPERATIONS: SUSTAINABILITY ACCOUNTING STANDARD, at 6-7 (2018), https://www.sasb.org/wp-content/uploads/2018/11/Coal_Operations_Standard_2018.pdf [https://perma.cc/4G8Y-NFV6].

280. *Id.*

E. Other Disclosure Regimes

Other governmental entities and organizations also focus on climate risks, often without paying attention to the risks posed by PEG climate initiatives. For instance, in October 2020, the Bank of England announced new disclosure rules to help markets price in the risks of climate change, citing the need for better information for investors "and for asset managers to make more informed decisions."[281] These disclosures generally track the TCFD recommendations, addressing the two primary sources of risk identified by many disclosure regimes: (1) the physical effects of climate change; and (2) the impact of changes associated with the transition to a carbon-neutral economy.[282] The Bank's requirements are more granular than the TCFD's recommendations, but they also do not adequately call attention to the risks posed by PEG climate initiatives.[283]

Similarly, the World Economic Forum and the big four accounting firms (Deloitte, Ernst & Young, KPMG, and Pricewaterhouse-Coopers) have unveiled a framework for environmental, social, and governance disclosures, citing the need for "a more sustainable relationship with our planet."[284] The World Economic Forum's report recognizes the growing pressure of standard-setting initiatives and investor interests on companies but does not fully address the financial risks posed by PEG climate initiatives.[285] The report notes the importance of European Commission initiatives, new SEC disclosure regulations, and initiatives from the CDP, SASB, and

281. Huw Jones, *Bank of England Says Company Disclosures on Climate Risks Will Be Mandatory*, REUTERS (Oct. 16, 2020, 6:10 AM), https://www.reuters.com/article/us-climate-change-boe-markets/bank-of-england-says-company-disclosures-on-climate-risks-will-be-mandatory-idUSKBN2711DZ [https://perma.cc/8WZE-7X2Y].

282. *See* BANK OF ENG., THE BANK OF ENGLAND'S CLIMATE-RELATED FINANCIAL DISCLOSURE 4-5, 9 (2020), https://www.bankofengland.co.uk/-/media/boe/files/annual-report/2020/climate-related-financial-disclosure-report-2019-20.pdf?la=en&hash=5DA959C54540287A2E90C823807E089055E6721B [https://perma.cc/N9PU-PRCU].

283. *See generally id.*

284. Avery Ellfeldt, *Major Accounting Firms Urge Companies to Disclose Risks*, E&E NEWS (Sept. 23, 2020, 6:48 AM), https://www.eenews.net/stories/1063714423 [https://perma.cc/9NMB-4MKZ].

285. *See* WORLD ECON. F., MEASURING STAKEHOLDER CAPITALISM: TOWARDS COMMON METRICS AND CONSISTENT REPORTING OF SUSTAINABLE VALUE CREATION 41 (2020), http://www3.weforum.org/docs/WEF_IBC_Measuring_Stakeholder_Capitalism_Report_2020.pdf [https://perma.cc/5W25-7M6K].

other international organizations,[286] but it does not address the financial effects of meeting the demands of PEG climate initiatives.[287] Along these lines, a recent report from Merrill noted the financial incentives for companies to disclose physical and transition risks,[288] but it also did not focus on the financial risks posed by PEG climate initiatives.[289]

Securities disclosure in Australia follows similar patterns. A report from the University of Melbourne Law School examined Australian public companies' financial disclosures under the Australian Securities and Investments Commission's (ASIC) regulations regarding climate risks.[290] The report notes that Australian companies are more likely to disclose risks associated with "changing energy markets, technology advances and changing energy policy to be of material consequence to their businesses, and are less likely to identify and disclose physical climate-related risks."[291]

The report found that shareholders and investors seek to influence the companies in which they invest by pressuring them to make emissions reductions, to adopt climate change mitigation goals, and to include those goals and their plans to achieve them in public disclosures.[292] The report also notes that civil society groups, often in partnership with shareholders or investors, are pressuring ASIC to enforce disclosure obligations as they relate to climate risks.[293] The report thus recognizes a private-sector push to encourage disclosure of public governance and physical climate risks,[294] but it does not grapple with the argument that companies

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286. *See id.*

287. *See generally id.*

288. *See* Christopher Hyzy, Jackie VanderBrug & Jonathan Kozy, *The Great Shift: Shareholder to Stakeholder Capitalism*, MERRILL 3, 5-8 (Sept. 2020), https://perma.cc/6JQD-CGNL.

289. *See generally id.*

290. *See* JACQUELINE PEEL, HARI OSOFSKY, BRETT MCDONNELL, HARI M. OSOFSKY, ANITA FOERSTER & REBEKKAH MARKEY-TOWLER, CORPORATE ENERGY TRANSITION: LEGAL TOOLS FOR SHIFTING COMPANIES TOWARDS CLEAN ENERGY PRACTICES 13 (Sept. 2020), https://law.unimelb.edu.au/__data/assets/pdf_file/0018/3500460/Corporate-Energy-Transition-Report.pdf [https://perma.cc/5Y6K-LBGR].

291. *Id.* at 22.

292. *See id.* at 10.

293. *See id.*

294. *See id.* at 46-47.

should also be disclosing their financial risks associated with PEG climate initiatives.[295]

III. Next Steps and Recommendations

Part III proposes responses that can increase the accuracy and completeness of the disclosure of transition risks posed by PEG climate initiatives. These responses include changes to: (1) the SEC's 2010 Guidance; (2) the CFTC and other government statements on climate disclosure; and (3) the hybrid disclosure regimes. These proposals do not require major departures from core securities disclosure principles, but all of them could enhance the effects of private initiatives on firm financial disclosures and climate change mitigation. This Part also suggests a longer-term, more fundamental shift in the attention given to private governance in the training of lawyers, accountants, business managers, and policymakers. In the long run, more complete and uniform disclosures not only could improve the information available to investors, but also could enhance the ability of PEG climate initiatives and other private governance activities to fill gaps in government leadership on climate change and other major social issues.

A. Updating Public and Hybrid Disclosure Regimes

1. Federal Regulatory Regime

The Biden administration is playing a large role in restructuring climate risk disclosure. Prior to his inauguration, the President's transition team identified climate risk as a powerful policy tool that could help the administration's climate agenda without relying on Congress to legislate.[296] Through an executive order and agency statements, the administration then pursued increased climate financial disclosure.[297]

295. *See generally id.*

296. Stephen Lacey, *The New President's Powerful Tool: Climate Risk Disclosure*, GREENTECH MEDIA (Dec. 3, 2020), https://www.greentechmedia.com/articles/read/the-new-presidents-powerful-tool-climate-risk-disclosure [https://perma.cc/HH3C-7W6B].

297. *See* Exec. Order No. 14,030, 86 Fed. Reg. 27,967 (May 20, 2021); *see, e.g.*, *SEC Response to Climate and ESG Risks and Opportunities*, U.S. SEC. & EXCH. COMM'N (Oct. 26,

The concepts discussed in this Article could inform the SEC, CFTC, and other federal regulatory authorities as they focus on disclosure of climate transition risks.[298] Two SEC commissioners have stated that they believe the agency should do more regarding climate change disclosure, and the Biden economic team indicated that climate change is at the top of its agenda.[299] Although legislation or regulations requiring disclosure of nonmaterial climate risks will be a heavy lift for the new SEC,[300] issuance of updated guidances and enforcement policies that call out the need to disclose material transition risks arising from PEG climate initiatives is well within the SEC's existing statutory and regulatory authority.[301]

Similarly, the CFTC would be well within its authority to assess and update existing statements regarding climate change to address explicitly the transition risks arising from PEG climate initiatives.[302] In addition to identifying climate change as a potential danger to financial stability,[303] the Federal Reserve has announced that it has joined the international Network of Central Banks and Supervisors for Greening the Financial System.[304] These are both significant steps toward seriously addressing the financial risks of climate change. Janet Yellen, the Biden administration Secretary of the Treasury, also has signaled that she places a high priority on

2021), https://www.sec.gov/sec-response-climate-and-esg-risks-and-opportunities [https://perma.cc/MB72-W9XT].

298. *See generally supra* Parts I-II.

299. *See* Zachary Warmbrodt & Debra Kahn, *How Biden Can Fight Climate Change Without Congress*, POLITICO (Nov. 24, 2020, 12:28 PM), https://www.politico.com/newsletters/the-long-game/2020/11/24/how-biden-fight-climate-change-congress-490983 [https://perma.cc/R8GV-T2NP].

300. *See, e.g.*, DAVID GARDINER & ASSOCIATES, *supra* note 115, at 3-4.

301. *See, e.g.*, *supra* notes 205-19 and accompanying text.

302. *See generally Commodity Exchange Act & Regulations*, COMMODITY FUTURES TRADING COMM'N, https://www.cftc.gov/LawRegulation/CommodityExchangeAct/index.htm [https://perma.cc/6R54-V855]; *Energy & Environmental Markets Advisory Committee*, COMMODITY FUTURES TRADING COMM'N, https://www.cftc.gov/About/AdvisoryCommittees/EEMAC [https://perma.cc/C5UU-DJM3].

303. *See* BD. GOVERNORS FED. RSRV. SYS., *supra* note 23, at 58.

304. Press Release, Bd. Governors Fed. Rsrv. Sys., Federal Reserve Board Announces It Has Formally Joined the Network of Central Banks and Supervisors for Greening the Financial System, or NGFS, as a Member (Dec. 15, 2020), https://www.federalreserve.gov/newsevents/pressreleases/bcreg20201215a.htm [https://perma.cc/C7LK-FSFK].

climate change disclosure and mitigation.[305] She leads the Financial Stability Oversight Council, which includes the leaders of the SEC, Federal Reserve, and other bank regulators.[306]

In ramping up the climate disclosure requirements, these federal actors would benefit from a broader conception of governance and a more complete understanding of the role that PEG climate initiatives play with respect to the financial performance of firms and the ability of governments and others to reduce the risk of climate change.

2. Hybrid Disclosure Regimes

The TCFD and SASB are already a step ahead of the federal agencies in recognizing the material risks posed by PEG climate initiatives.[307] They could improve firm disclosure, however, by updating their existing standards to explicitly reference the transition risks of PEG climate initiatives. They also could provide specific examples and guidance to aid in the development of corporate climate disclosures. The momentum behind increased climate transition risk disclosures, as demonstrated by recent TCFD and SASB announcements,[308] suggests that an increased focus on the disclosure of the risks of PEG climate initiatives is feasible and can be done quickly.

B. Updating the Mental Models of Lawyers, Accountants, Business Managers, and Policymakers

The recommendations for the federal and hybrid regulatory regimes are viable near-term actions, but a more fundamental change is also warranted. It is unlikely just as a matter of chance that the SEC disclosures of the Fortune 100 vary greatly in their disclosure of PEG climate risks, and that the SEC, CFTC, TCFD, SASB, and other securities disclosure regimes all provide only minimal focus on

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305. *See* Victoria Guida, *Janet Yellen: Climate Change Poses "Existential Threat" to Financial Markets*, POLITICO (Mar. 31, 2021, 6:19 PM), https://www.politico.com/news/2021/03/31/yellen-climate-change-fsoc-478769 [https://perma.cc/BF2P-W84R].

306. *Id.*

307. *See supra* Part II.D.

308. *See supra* Part II.D.

PEG climate initiatives. These initiatives not only are relatively recent phenomena, emerging largely in the last decade,[309] but they also challenge the mental model that lawyers, accountants, business managers, and policymakers use to frame the financial challenges that social problems and responses pose to firms.[310]

When confronting a major social problem, the question often asked as to securities disclosure is how the problem and responses to the problem will affect the firm's financial condition.[311] As to the responses to the problem, the question often asked is, "[w]hat can government do?"[312] The result of framing the questions in this way is that the responses to problems such as climate change are viewed as posing physical risks and government regulatory risks.[313] Once those have been assessed and disclosed, the discloser's job is done.[314]

This Article demonstrates that this framing is no longer adequate. PEG climate initiatives often pose material transition risks to firms, even though they are not a form of governmental regulation,[315] but disclosure of PEG climate risks is uneven at best.[316] Lawyers, accountants, business managers, and policymakers need a broader mental model that can accommodate the role of private governance as well as public governance. The literature across multiple disciplines has demonstrated the growth of private governance on many topics—and the emergence of universal owners suggests that this will continue—but the literature on private governance risk is only beginning to seep into the training of the securities disclosure gatekeepers.[317] One answer is to expand curricula and textbooks to enable training of lawyers, accountants, business managers, and policymakers about the theory, types, and effects of

309. *See* Vandenbergh, *supra* note 27, at 140-41.

310. *See, e.g.*, *id.* at 182-83.

311. *See, e.g.*, VANDENBERGH & GILLIGAN, *supra* note 38, at 119, 138; PEEL ET AL., *supra* note 290, at 28.

312. VANDENBERGH & GILLIGAN, *supra* note 38, at 15.

313. *See supra* Introduction.

314. *See supra* Introduction.

315. *See supra* Part I.A.

316. *See supra* Part I.B.2.

317. For a discussion of the implications of universal owner theory for disclosure of ESG risks, see John C. Coffee, Jr., *The Future of Disclosure: ESG, Common Ownership, and Systematic Risk,* 2021 COLUM. BUS. L. REV. 602, 636-41; Madison Condon, *Externalities and the Common Owner*, 95 WASH. L. REV. 1, 24-26 (2020).

private governance.[318] In addition, practicing lawyers and accountants could be brought up to speed quickly through the addition of private governance components to continuing education programs.[319] Mental models take years and, in some cases, generations to update;[320] but the demonstration of visible, quantifiable effects on financial performance and climate change mitigation may accelerate the process.

In addition, although this Article has focused on the role of private governance in climate mitigation, private governance initiatives have played an important role in many other areas that may affect securities disclosure. For decades, private governance has affected corporate risks and opportunities with respect to food safety, organic products, and fair trade.[321] More recently, however, private governance initiatives have begun to play an important role in campaign finance, affecting (1) the contributions that candidates agree to accept;[322] (2) the disclosure of campaign contributions by firms;[323] and (3) state voting laws.[324] Private governance initiatives also have addressed content concerns in traditional and new media,[325] as well

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318. *See, e.g.*, Scott Schang, *Developing a Sustainability Law Course*, ENV'T F. Nov./Dec. 2020, at 48-49 (discussing the absence of training on private environmental governance for lawyers); Michael P. Vandenbergh, David Daniels Allen Distinguished Chair of Law, Vanderbilt Law School, The Emerging Environmental Law Curriculum Conference: The Role of Private Environmental Governance in the Modern Environmental Law Curriculum (June 21, 2019) (discussing ways to include PEG in environmental law school classes).

319. *See, e.g.*, *Events*, ENV'T L. INST., https://www.eli.org/private-environmental-governance/events [https://perma.cc/T3LS-H3WZ] (listing webinars and conferences regarding private environmental governance).

320. *See supra* note 59 and accompanying text.

321. *See* Vandenbergh, *supra* note 27, at 148-51. *See generally* Van Loo, *supra* note 58 (examining the role that corporations play in enforcing legal requirements in the technology, banking, oil, and pharmaceuticals industries).

322. *See generally* Ganesh Sitaraman, Essay, *Contracting Around* Citizens United, 114 COLUM. L. REV. 755 (2014).

323. *See generally* Haan, *supra* note 27.

324. *See, e.g.*, Marianna Sotomayor & Todd C. Frankel, *Republicans Ramp up Attacks on Corporations over Georgia Voting Law, Threaten "Consequences,"* WASH. POST (Apr. 5, 2021, 7:59 PM), https://www.washingtonpost.com/politics/georgia-voting-mlb-trump-mcconnell/2021/04/05/5aa65090-9622-11eb-962b-78c1d8228819_story.html [https://perma.cc/Z3NA-EWF7].

325. *See, e.g.*, Kate Klonick, *The New Governors: The People, Rules, and Processes Governing Online Speech*, 131 HARV. L. REV. 1598, 1658-62 (2018) (examining the role of new media platforms regarding the content of media coverage); Michael P. Vandenbergh, Essay, *Social Checks and Balances: A Private Fairness Doctrine*, 73 VAND. L. REV. 811, 812-14 (2020) (arguing for a private standard to increase the completeness and accuracy of the information conveyed via traditional and new media); Kristen E. Eichensehr, *Digital Switzerlands*, 167

as filled gaps in retail consumer protection.[326] Similarly, the lack of government leadership during the COVID-19 pandemic induced firms to play the traditional government role of setting public health standards.[327] In each of these areas, more informed investor decision-making and better social responses will arise if the securities disclosure regime and the mental models of its key gatekeepers reflect the importance of both private governance and public governance.[328]

CONCLUSION

Global pressure for corporate climate disclosure by government, private, and hybrid regulatory regimes has been growing for the last decade.[329] The SEC is revisiting its approach to climate change financial disclosure,[330] and the key question is what should be disclosed.

Requiring climate-related disclosure that does not meet a traditional financial materiality threshold is a valuable public welfare measure given the immediate, severe, and long-lasting threat of climate change.[331] Any effort to expand government disclosure requirements will increase political and academic resistance, however, by adding market efficiency adherents to the climate skeptics who already oppose climate-related disclosures.[332] The attempts to increase climate disclosures—even if they are not material—are

U. PA. L. REV. 665, 666-67, 672, 674-80 (2019) (discussing performance of governmental functions by internet companies).

326. *See* Rory Van Loo, *The Corporation as Courthouse*, 33 YALE J. ON REGUL. 547, 551-53, 569-71 (2016) (arguing that private sector online reputation websites are filling informational and enforcement gaps left by courts and administrative agencies in the context of consumer disputes).

327. *See, e.g.*, Bill Saporito, *Meet the New C.D.C. Director: Walmart*, N.Y. TIMES (July 24, 2020), https://www.nytimes.com/2020/07/24/opinion/walmart-coronavirus-masks.html [https://perma.cc/8PER-7QWX] (arguing that because of their mask policies, "the nation's retailers have become the first line of defense against the pandemic").

328. *See* Van Loo, *supra* note 58, at 522.

329. *See supra* Part II.

330. *See* Warmbrodt & Kahn, *supra* note 299.

331. *See supra* notes 10-13 and accompanying text.

332. *See, e.g.*, VANDENBERGH & GILLIGAN, *supra* note 38, at ix-xi.

worthy efforts, but the opportunity cost of pursuing them to the exclusion of other climate disclosure requirements is high.[333]

This Article argues for changes to SEC and other disclosure regimes that can drive additional private-sector climate mitigation but are less likely to generate resistance. Thus, these changes can be adopted quickly while battles wage over the role of materiality in financial disclosure. The focus of the growing global pressure has been on greater disclosure of two types of climate risks: physical risks and transition risks.[334] The theoretical and empirical analysis in this Article demonstrates that transition risks include not just the risks arising from future government laws, policies, and programs nor just the risks arising from shifts in markets. Rather, transition risks also include the risks arising from the translation of widespread preferences for decarbonization into market forces through private climate governance.

The empirical analysis presented in this Article also demonstrates variable disclosure of these risks, suggesting that these risks are important enough for many publicly traded firms to disclose, yet are so easy to overlook that many similarly situated firms do not disclose them. This Article also argues for updating the mental models that steer the training and decision-making of lawyers, accountants, business managers, and policymakers. It suggests that the effects of private climate initiatives can be better understood, identified, and disclosed if they are conceptualized as a discrete source of transition risk. Guidance documents, enforcement policies, and regulations that require firms to account for private climate initiatives do not mandate that the SEC require disclosure of nonmaterial risks. Rather, these guidance documents, enforcement policies, and regulations force firms to not overlook risks that may be material but nevertheless fall outside the conceptual frameworks and training of lawyers, accountants, business managers, and policymakers.

This change in disclosure will have two salutary effects: (1) more accurate and complete financial disclosures; and (2) acceleration of efforts to decarbonize the economy. The swinging pendulum of

333. *See generally* Jonathan M. Gilligan & Michael P. Vandenbergh, *Accounting for Political Feasibility in Climate Instrument Choice*, 32 VA. ENV'T L.J. 1 (2014).

334. *See supra* notes 17-19 and accompanying text.

White House support for climate mitigation and the deep divisions in Congress and the Supreme Court will limit the possibility of adopting and implementing major federal climate legislation and regulations.[335] Leveraging private sector action on climate change thus will continue to be an important piece of the climate mitigation effort.

Disclosure of the risks of private climate initiatives not only can yield more informed financial decision-making, but also can promote the use of private initiatives to reduce GHG emissions. These GHG emissions are critical if major, near-term reductions are needed to maintain some chance of achieving the 2ºC goal of the Paris Agreement,[336] much less the 1.5ºC aspiration.[337] In addition, private sector action, which is driven by factors including employee, customer, investor, and lender norms, may be more durable than public sector regulatory actions. In the long run, the process of accounting for and disclosing private governance risks should extend well beyond climate change to other regulatory areas, including campaign finance, data privacy, health, worker safety, and others.

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335. *See, e.g.*, Warmbrodt & Kahn, *supra* note 299.

336. Paris Agreement, United Nations Framework Convention on Climate Change, art. 2(1)(a), Dec. 12, 2015, T.I.A.S. No. 16-1104, U.N.T.C. ch. XXVII(7.d), https://unfccc.int/sites/default/files/english_paris_agreement.pdf [https://perma.cc/V73Z-E34B].

337. *Id.*