Rotterdam School of Management
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Working paper

The Net-Zero Ledger:

Accountability and Regulation of Corporate Climate Pledges

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Executive Summary

Since the adoption of the Paris Agreement, thousands of large companies worldwide have committed to transitioning their businesses to net-zero greenhouse gas emissions to help mitigate climate change. The momentum of these transformative, albeit voluntary commitments precipitated the creation of a de facto business standard largely governed by self-regulation. However, as "net zero" lacks a clear definition and the decarbonization pathway for many sectors and companies remains unclear, the meaningfulness of these commitments has been repeatedly questioned by stakeholders and investors alike.

Corporate net-zero commitments now face increasing regulatory scrutiny. Regulatory initiatives, from the U.S. Securities and Exchange Commission's (SEC) climate disclosure rules or the International Sustainability Standards Board (ISSB), aim to give investors decision-useful information. They introduce specific disclosure requirements for companies with climate-related targets and transition plans. The analysis of these requirements shows that, despite critical differences in the regulatory approaches (double materiality, etc.) there is significant consistency among rules adopted by the United States, the European Union and the ISSB when it comes to requiring transparency from firms on their climate targets. Yet, all regulatory initiatives fall short of guaranteeing consistent, comparable, and reliable information to investors as they mostly require the provision of backward-looking, non-financial disclosures, often in the form of narratives. The paper similarly demonstrates the significant implementation and enforcement challenges faced by the European Union's Corporate Sustainability Due Diligence Directive mandating the largest companies to have net-zero transition plans.

The legal analysis exposes discrepancies between climate-related reporting and financial reporting among companies that have committed to net-zero emissions. These discrepancies reveal a glaring loophole, as the law does not impose consistent disclosures between financial matters and climate-related or more broadly sustainability matters. In other words, firms can be trumpeting their climate commitments while saying—and doing—something entirely different in their financials.

To close this loophole and address the limits of new climate reporting regimes, this paper proposes the establishment of a regulatory framework requiring the proper alignment of non-financial and financial disclosures, dubbed the Net-Zero Ledger. It will compel businesses to evidence the integration of their climate pledges into their financial planning, strategy, and accounting. Concrete recommendations to regulators are made to establish this Net-Zero Ledger, on the basis of existing best practices. Accordingly, regulators would require firms to spell out in details the effects of climate commitments on, for instance, financial estimates and assumptions, asset impairments, and fair value measurements. Changes in accounting standards would not be required, although such changes would further enhance transparency and legal certainty. Implementing these new rules will be the responsibility of Chief Financial Officers and accountants, under the supervision of auditors and regulators. This new regulatory structure is necessary to ensure both the accuracy and transparency of corporate disclosures and the meaningfulness of corporate net-zero commitments.

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Introduction

In 2024, the Science-Based Target Initiative (SBTi), a prominent nonprofit specializing in certifying climate targets, has removed 239 companies from its net-zero register for failing to submit their climate plans for validation.[1] Among the companies struck from the SBTi register were corporate leaders such as Microsoft and Unilever.[2] Months earlier, SBTi removed Amazon from the register,[3] notwithstanding the company's leadership of The Climate Pledge, which gathers some of the most ambitious companies around a commitment to reach greenhouse gas emissions by 2040.[4] The challenges facing companies attempting to meet the SBTi's climate requisites highlight the difficulties encountered by the thousands of companies pursuing such targets, particularly when it comes to agreeing on the pathway to reach net-zero greenhouse gas emissions (hereafter referred to as 'net-zero').

Corporate climate pledges aim to support the global economic transition to net zero, which is required to mitigate and successfully confront the risk of catastrophic climate change.[5] This transition becomes ever more urgent as the goal to contain global warming to 1.5ºC set in the Paris Agreement looks to be further out of reach.[6] Indeed, to limit the rise in global average temperatures, the world needs to achieve a balance between anthropogenic greenhouse gas (GHG) emissions and removals through carbon sinks.[7] Scientists tell us that climate neutrality will be needed to contain the risks of climate change.[8] Yet, the United Nations' annual Emissions Gap Reports notes the continuous rise of global greenhouse gas emissions.[9] And it points out that none of the current policies or international commitments made by State Parties to the Paris Agreement would bring climate neutrality within reach to limit global warming well below 2ºC, let alone 1.5ºC.[10]

Over the past decade, the failure of governments to defuse the climate emergency on their own prompted thousands of companies worldwide to "pledge to net-zero," i.e., to reduce their own GHG emissions drastically and permanently in a matter of decades.[11] And

[1] Frances Schwartzkopff, *CO2 Watchdog Delists Net Zero Pledges of More Than 200 Companies*, BLOOMBERG (Mar. 22, 2024), https://www.bloomberg.com/news/articles/2024-03-22/co2-watchdog-delists-net-zero-pledges-of-more-than-200-companies.
[2] Id.
[3] Natasha White & Matt Day, *Amazon is removed from key list of climate-conscious companies*, LOS ANGELES TIMES (Aug. 14, 2023), https://www.latimes.com/business/story/2023-08-14/amazon-carbon-emissions-climate-change.
[4] Dana Mattioli, *Amazon to Launch $2 Billion Venture Capital Fund to Invest in Clean Energy*, WALL ST. J. (June 23, 2024), https://www.wsj.com/articles/amazon-to-launch-2-billion-venture-capital-fund-to-invest-in-clean-energy-11592910001.
[5] IPCC, SPECIAL REPORT: GLOBAL WARMING OF 1.5°C, 5 (2018).
[6] EU Copernicus Climate Change Service, *Warmest January on record, 12-month average over 1.5°C above preindustrial*, MONTHLY CLIMATE BULLETIN (Feb. 9, 2024), https://climate.copernicus.eu/warmest-january-record-12-month-average-over-15degc-above-preindustrial.
[7] IPCC, SPECIAL REPORT: GLOBAL WARMING OF 1.5°C, 24 (2018).
[8] IPCC, CLIMATE CHANGE 2023: SYNTHESIS REPORT. CONTRIBUTION OF WORKING GROUPS I, II AND III TO THE SIXTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (2023).
[9] United Nations Environmental Programme (UNEP), EMISSIONS GAP REPORT 2023: BROKEN RECORD – TEMPERATURES HIT NEW HIGHS, YET WORLD FAILS TO CUT EMISSIONS (AGAIN) (2023), chap. 2.
[10] Id. chaps 3 and 4.
[11] Daniel C. Esty & Nathan de Arriba-Sellier, *Zeroing In On Net-Zero: From Soft Law to Hard Law in Corporate Climate Change Pledges,* 94 U. COLO. L. REV. 435 (2023).

while climate change causes dire risks for economies and societies all over the planet,[12] the transition to net-zero represents a commensurate economic transformation.[13] Or, in the words of Sir Lord Nicholas Stern, it "represents not a cost or a burden but the greatest economic, business, and commercial opportunities in modern times."[14] Although companies have made these commitments voluntarily at first, corporate net-zero commitments are being increasingly scrutinized. Regulatory initiatives are emerging to rein in deceitful representations of corporate activities (greenwashing) and enhance transparency over corporate exposure to climate-related financial risks.[15] This paper critically examines both self-regulation and governmental regulation of climate-related disclosure with a particular focus on the regulation of corporate climate pledges. It identifies a glaring loophole in the regulation of corporate disclosure resulting from the discrepancies between the regimes of financial reporting and climate reporting. To address this loophole, I propose the Net-Zero Ledger, a regulatory requirement that would compel businesses to align their financial reporting with their corporate net-zero commitments.

Pledging to net-zero implies deep decarbonization to the point that no net addition of GHG emissions to the atmosphere should be due to the company's economic activity.[16] Thus, any residual emissions would have to be "offset" by GHG removals from the atmosphere.[17] Corporate net-zero commitments have mushroomed over the past decade and continue to grow steadily; in 2023, the number of Forbes Global 2000 firms with corporate net-zero commitments nearly doubled compared to 2020, representing nearly half of the companies in the index.[18] Companies in every sector of the economy, including some of the world's most prominent companies, have made such commitments. Asset managers like BlackRock and Vanguard,[19] banks like JPMorganChase and Wells Fargo,[20] and even oil producers like Saudi Aramco and ExxonMobil are among those companies that have pledged to net-zero.[21]

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[12] IPCC, CLIMATE CHANGE 2023: SYNTHESIS REPORT. CONTRIBUTION OF WORKING GROUPS I, II AND III TO THE SIXTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, 12-18 (2023).

[13] IPCC, SPECIAL REPORT: GLOBAL WARMING OF 1.5°C (2018), at 42; Sustainable Development Solutions Network, AMERICA'S ZERO CARBON ACTION PLAN (2020), https://irp-cdn.multiscreensite.com/6f2c9f57/files/uploaded/zero-carbon-action-plan%20%281%29.pdf; NAT'L ACAD. SCI., ACCELERATING DECARBONIZATION IN THE UNITED STATES: TECHNOLOGY, POLICY, AND SOCIETAL DIMENSIONS (2021).

[14] NICHOLAS STERN, G7 LEADERSHIP FOR SUSTAINABLE, RESILIENT AND INCLUSIVE ECONOMIC OPPORTUNITY AND GROWTH: AN INDEPENDENT REPORT REQUESTED BY THE UK PRIME MINISTER FOR THE G7, 2 (2021).

[15] Virginia Harper Ho, *Climate Disclosure Line-Drawing and Securities Regulation*, 56 UC DAVIS L. REV. 1875 (2023).

[16] Sam Fankhauser et al., *The meaning of net zero and how to get it right*. 12 NAT. CLIM. CHANG. 15 (2022).

[17] Id. at 17-18.

[18] ECIU & University of Oxford, NET ZERO STOCKTAKE 2023 (2023).

[19] 2030 Net Zero Statement, BLACKROCK, https://www.blackrock.com/corporate/sustainability/2030-net-zero-statement (last visited Aug. 4, 2024); Simon Jessop, *Vanguard commits $290 bln of assets to be net-zero by 2050*, REUTERS (May 16, 2022), https://www.reuters.com/business/sustainable-business/vanguard-sees-half-actively-managed-assets-aligned-with-net-zero-by-2030-2022-05-26/.

[20] *Sustainability Initiatives*, JPMORGANCHASE https://www.jpmorganchase.com/impact/environmental-sustainability/es-initiatives (last visited Aug. 4, 2024); *CO2eMission*, WELLS FARGO, https://sites.wf.com/co2emission/ (last visited Aug. 4, 2024).

[21] *Climate Change*, ARAMCO, https://www.aramco.com/en/sustainability/climate-change (last visited Aug. 4, 2024); ExxonMobil, *Exxon Mobil's Net-Zero Ambition* (July 2022), https://corporate.exxonmobil.com/-/media/global/files/advancing-climate-solutions-progress-report/2022-july-update/net-zero-ambition.pdf.

While there is some consensus as to what net-zero emissions means at a global scale, "net-zero" lacks a clear definition at the corporate level.[22] In addition, the pathway to net-zero emissions for many sectors and companies remains unclear.[23] Thus, the meaningfulness of corporate net-zero commitments has been repeatedly questioned by stakeholders and investors alike. This paper shows that the response to this problem came first from outside of governments. Some entities, mostly non-governmental organizations, have sought to provide benchmarks for net-zero commitments in an attempt to promote self-regulation.[24] The Science-Based Targets Initiative (SBTi), and its Net-Zero Standard, is one of the most famous.[25] Coalitions such as The Climate Pledge and the Glasgow Financial Alliance for Net-Zero (GFANZ) for financial institutions and intermediaries were created, rallying corporate leaders around a shared vision based on specific membership criteria.[26] Investor groups, such as Climate Action 100+, have similarly sought to drive and frame corporate commitments that would deliver long-term value creation.[27]

Corporate net-zero commitments are now subject to increasing regulatory scrutiny. Indeed, regulators worldwide, from Singapore to the United States, have sought to regulate and, in most instances, require climate-related disclosure against the background of considerable investor interest and the increase in climate reporting and, more broadly, sustainability reporting.[28] The Securities & Exchange Commission's (SEC) climate disclosure rules are a prime example of such regulations as they require the disclosure of specific information for companies that have set climate targets, drawn transition plans, or engaged in carbon offsetting.[29] In this respect, this Article shows that the SEC's climate disclosure rules are, with respect to corporate net-zero commitments, broadly on par with international regulatory initiatives, such as those of the International Sustainability Standards Board (ISSB) or the European Union's Corporate Sustainability Reporting

[22] Carbone4, *Net Zero Initiative - Diving into the Net Zero Initiative Guidelines* (Apr. 2020), https://www.carbone4.com/en/publication-referentiel-nzi.

[23] Simon Dietz et al., *TPI Sectoral Decarbonisation Pathways*, TRANSITION PATHWAY INITIATIVE (Feb. 2022), https://www.transitionpathwayinitiative.org/publications/2022-tpi-sectoral-decarbonisation-pathways.pdf; Sven Teske et al., *Limit global warming to 1.5oC: Sectoral pathways & Key Performance Indicators*, UNIVERSITY OF TECHNOLOGY SYDNEY (May 2022), https://www.unepfi.org/wordpress/wp-content/uploads/2022/05/UTS_Limit-global-warming_Sectoral-Pathways-and-Key-KPIs.pdf.

[24] On this trend of environmental self-regulation, see Michael P. Vandenbergh, *Private Environmental Governance*, 99 CORNELL L. REV. 129 (2013).

[25] Camilla Hodgson, *Science-based arbiter of corporate climate targets sets out new rules*, FIN. TIMES (Oct. 28, 2021), https://www.ft.com/content/903a8476-3efd-49af-b012-193063e29194; Ian Morse, *Inside the little-known group setting the corporate climate agenda*, MIT TECHNOLOGY REVIEW (May 26, 2023), https://www.technologyreview.com/2023/05/16/1073064/inside-the-little-known-group-setting-the-corporate-climate-agenda/.

[26] Dana Mattioli, *Amazon to Launch $2 Billion Venture Capital Fund to Invest in Clean Energy*, WALL ST. J. (June 23, 2020), https://www.wsj.com/articles/amazon-to-launch-2-billion-venture-capital-fund-to-invest-in-clean-energy-11592910001; Owen Walker & Camilla Hodgson, *Carney-led finance coalition has up to $130tn funding committed to hitting net zero*, FIN. TIMES (Nov. 3, 2021), https://www.ft.com/content/8f7323c8-3197-4a69-9fcd-1965f3df40a7.

[27] *Climate Action 100+ Net Zero Company Benchmark shows an increase in company net zero commitments, but much more urgent action is needed to align with a 1.5°C future*, CLIMATE ACTION 100+ (30 Mar. 2022), https://www.climateaction100.org/news/climate-action-100-net-zero-company-benchmark-shows-an-increase-in-company-net-zero-commitments-but-much-more-urgent-action-is-needed-to-align-with-a-1-5c-future/.

[28] Kenza Bryan, *Bar is rising for companies' disclosure of climate risk information*, FIN. TIMES (Mar. 13, 2024), https://www.ft.com/content/45fa4acd-e861-452b-82e7-b2e66b7c271d.

[29] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21668 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 210, 229, 230, 232, 239, & 249 (2024)).

Directive (CSRD) despite being widely criticized for falling short of global sustainability disclosure standards.[30]

This paper argues that such regulatory initiatives are inadequate in ensuring the provision of consistent, comparable, and reliable information on the meaningfulness of corporate net-zero commitments, given that they largely consist of narrative-type disclosures and provide primarily backward-looking information. To remedy the inadequacy of reporting requirements, this Article proposes a greater scrutiny of financial accounting to ensure an alignment between climate-related disclosures and financial reporting. This call for regulatory intervention builds on widespread and documented evidence of misalignment between climate-related reporting and financial reporting and the potential for financial reporting defined by regulation to provide transparency regarding corporate climate pledges – and thus an important source of discipline backing up policies meant to move society to a low-carbon future.

The present paper makes a significant contribution to the emerging strand of literature on climate reporting. The requirement and provision of climate-related non-financial disclosures has been the object of much scholarly attention,[31] notably to discuss the legality and viability of the SEC rules.[32] The critical importance of corporate net-zero commitments has not been ignored either. While Professor Shelley Welton criticized the explosion of individual and potentially conflicting net-zero initiatives from non-state actors that could undermine collective action,[33] other scholars have emphasized the potential of corporate net-zero commitments for the achievement of the Paris Agreement's objectives

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[30] Virginia Harper Ho, *Modernizing ESG Disclosure*, 2022 U. ILL. L. REV. 277 (2022); Virginia Harper Ho, *US ESG Regulation in Trasnational Context*, in CORPORATE PURPOSE, CSR AND ESG: A TRANS-ATLANTIC PERSPECTIVE (Jens-Hinrich Binder, Klaus J. Hopt, Thilo Kuntz, eds., Oxford Univ. Press, forthcoming 2024). See also Isla Binnie and Ross Kerber, *US SEC adopts climate rule that may face challenges despite dilution*, REUTERS (Mar. 6, 2024), https://www.reuters.com/sustainability/boards-policy-regulation/us-sec-vote-long-awaited-overhaul-corporate-climate-disclosure-rules-2024-03-06/; Hiroko Tabuchi, Ephrat Livni and David Gelles, *S.E.C. Approves New Climate Rules Far Weaker Than Originally Proposed*, N.Y. TIMES (Mar. 6, 2024), https://www.nytimes.com/2024/03/06/climate/sec-climate-disclosure-regulations.html; Scott Patterson, *SEC Approves Weakened Climate Disclosure Rule*, WALL ST. J. (Mar. 6, 2024), https://www.wsj.com/finance/regulation/sec-climate-disclosure-greenhouse-gases-d57de27c; *Sierra Club, Earthjustice Challenge SEC's Weakened Climate Risk Disclosure Rule,* EARTHJUSTICE (Mar. 13, 2024), https://earthjustice.org/press/2024/sierra-club-earthjustice-challenge-secs-weakened-climate-risk-disclosure-rule.

[31] See on the justification; Daniel C. Esty & Quentin Karpilow, *Harnessing Investor Interest in Sustainability: The Next Frontier in Environmental Information Regulation*, 36 YALE J. REG. 625 (2019); Jill E. Fisch, *Making Sustainability Disclosure Sustainable*, 107 GEO. L. J. 923 (2019); Cynthia A. Williams & Donna M. Nagy, *ESG and Climate Change Blind Spots: Turning the Corner on SEC Disclosure*, 99 TEX. L. REV. 1453 (2021); Virginia Harper Ho, *Modernizing ESG Disclosure*, 2022 U. ILL. L.R. 277 (2022); Madison Condon, *Market Myopya's Climate Bubble*, 2022 UTAH L. REV. 63 (2022); George S. Georgiev, *The Market-Essential Role of Corporate Climate Disclosure*, 56 UC Davis L. Rev. 2105 (2023).

[32] See Lawrence Cunningham et al., *Comment Letter on SEC Climate Disclosure Proposal by 22 Law and Finance Professors* (Apr. 25, 2022), https://www.sec.gov/comments/s7-10-22/s71022-20126528-287180.pdf; Lisa Benjamin, *The SEC and Climate Risk*, 40 UCLA J. ENVTL. L. & POL'Y 1 (2022); George S. Georgiev, *The SEC's Climate Disclosure Rule: Critiquing the Critics*, 50 RUTGERS L. REC. 101 (2022); Scott Hirst, *Saving Climate Disclosure*, 28 STAN. J.L. BUS. & FIN 91 (2023); John P. Anderson, *Is the SEC Proposing a "Loaded-Question" Climate Change Disclosure Rule?*, 84 LA. L. REV. 1263 (2024); Erin Murphy, *The Impossibility of Corporate Political Ideology: Upholding SEC Climate Disclosures against Compelled Commercial Speech Challenges*, 118 NW. U. L. REV. 1703 (2024).

[33] Shelley Welton, *Neutralizing the Atmosphere*, 132 YALE L. J. 171 (2022).

and pushed forward recommendations in this respect.[34] Yet, there has been little scholarly criticism of the new climate-related disclosure regulations in this respect. Instead, private law was mobilized to suggest improvements in corporate governance and discipline businesses with net-zero pledges.[35] This paper takes a distinctly different approach. It identifies significant gaps in the regulation of corporate disclosure because of the inadequacy of financial reporting rules. Already, Tyler Winterich had argued for the revision of financial accounting rules in view of rising climate risks.[36] The present paper pursues a similar, yet distinct perspective by considering financial reporting at large, without proposing a revision of accounting rules. Indeed, changes in disclosure regulation could be enough to address the limits of current regulatory initiatives.

Unlike most of the scholarship,[37] this paper also places the SEC rules in international perspective, addressing some of the prevalent criticisms. Indeed, the transition to net-zero is an international enterprise that is at the core of the Paris Agreement. The global character and impact of the movement of corporate climate pledges cannot be ignored, like the commensurate emergence of the regulatory response. The extraterritoriality of foreign regulations is thus also considered.

The paper proceeds as follows. Part I examines the emergence of the corporate net-zero commitments. The voluntary nature of the corporate net-zero commitments is at the core of this examination. Indeed, despite this voluntary nature, net-zero has become a de facto business standard outside of any legal mandate. This absence of legal framework creates room for greenwashing. Self-regulation and the multiplication of benchmarks have sought to address such critics and provide tools for investors and the public to ascertain the meaningfulness of corporate net-zero commitments.

Part II turns to the regulatory responses to the spread and consolidation of corporate net-zero commitments. Both in the United States and abroad, regulatory initiatives compel businesses to provide transparency over their corporate net-zero commitments. The critical review of these initiatives exposes a glaring loophole in the regulation of corporate disclosure in the absence of an obligation to align financial reporting with climate reporting. The existence of this loophole is notably documented by investigating corporate annual reports.

This analysis leads to the proposal of the Net-Zero Ledger in Part III. The Net-Zero Ledger would require firms to demonstrate how their financial reporting is affected by their

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[34] Albert C. Lin, *Making Net Zero Matter*, 79 WASH. & LEE L. REV. 679 (2022); Daniel C. Esty & Nathan de Arriba-Sellier, *Zeroing In On Net-Zero: From Soft Law to Hard Law in Corporate Climate Change Pledges* 94 U. COLO. L. REV. 435 (2023).

[35] Alperen A. Gözlügöl & Wolf-Georg Ringe, *Net-Zero Transition and Divestments of Carbon-Intensive Assets*, 56 UC DAVIS L. REV. 1963 (2023); John Armour, Luca Enriques, & Thom Wetzer, *Green Pills: Making Corporate Climate Commitments Credible*, 65 ARIZ. L. REV. 285 (2023); Nadav Orian Peer, *Corporate Climate Targets: Between Science and Climate Washing*, 33 N.Y.U. ENV'T L. J. (forthcoming 2024).

[36] Tyler Winterich, *Accounting for Climate Risk*, 41 REV. BANKING & FIN. L. 758 (2022).

[37] Exceptions include Virginia Harper Ho, *Climate Disclosure Line-Drawing and Securities Regulation*, 56 UC DAVIS L. REV. 1875 (2023); Virginia Harper Ho, *US ESG Regulation in Trasnational Context*, in CORPORATE PURPOSE, CSR AND ESG: A TRANS-ATLANTIC PERSPECTIVE (Jens-Hinrich Binder, Klaus J. Hopt, Thilo Kuntz, eds., Oxford Univ. Press, forthcoming 2024).

corporate net-zero commitments. In other words, their ledgers would have to reflect their planned transition to net-zero. By focusing on the firm's financials, the Net-Zero Ledger addresses the limitations of current reporting regimes by providing more forward-looking and tangible information to investors and restore consistency between financial disclosures and climate-related disclosures. As such, it would better prevent greenwashing, deception, and fraud.

I. Net zero as a business standard

A. Corporate net-zero commitments as part of the social license to operate

Nearly ten years ago, the universally adopted Paris Agreement set the global climate action objective to limit the rise of global average temperatures to 1.5°C.[38] Achieving this objective would lessen the catastrophic impacts of climate change on human economies and societies. The Paris Agreement also defined the method for achieving this objective: undertake rapid reductions of greenhouse gas emissions to halt their continuous accumulation in the atmosphere and "achieve a balance" between residual emissions and carbon sinks.[39] However, nearly ten years after the adoption of the Paris Agreement, it is not yet clear whether global GHG emissions have peaked. As a result, the target of 1.5°C grows out of reach. Still, achieving net-zero greenhouse gas emissions is the only way by scientific consensus to mitigate climate change and contain its devastating effects.[40]

The 2021 Glasgow Climate Summit saw another significant development. While 197 nations officially endorsed the global target of reaching "net-zero" by mid-century.[41] the commitment to net-zero greenhouse gas emissions cascaded from nations to corporations, leading thousands of companies to rally around that goal and make it their own. Twelve thousand companies are now part of the United Nations-backed Race-to-Zero campaign launched for the Glasgow summit.[42] In its wake, corporate net-zero commitments have mushroomed and continued to grow steadily over recent years, despite the so-called "ESG backlash" led by conservative state treasurers, attorneys general, and

[38] Paris Agreement, art. 2(1)(a), Apr. 22, 2016.
[39] Id. art. 4(1).
[40] IPCC, CLIMATE CHANGE 2023: SYNTHESIS REPORT. CONTRIBUTION OF WORKING GROUPS I, II AND III TO THE SIXTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (2023).
[41] Conference of the Parties Serving as the Meeting of the Parties to the Paris Agreement, *Report of the Conference of the Parties Serving as the Meeting of the Parties to the Paris Agreement on its Third Session, Held in Glasgow from 31 October to 13 November 2021*, U.N. Doc. FCCC/PA/CMA/2021/10/Add.1 (Mar. 8, 2022).
[42] Race to Zero Campaign, *Who's In,* U.N. CLIMATE CHANGE, https://climatechampions.unfccc.int/whos-in/ (last visited Aug. 4, 2024).

legislatures in the United States.[43,44] Of the 2,000 largest publicly listed companies, nearly half had a net-zero pledge, with the figure rising to 60% for Fortune 300 companies.[45]

Remarkably, such corporate net-zero commitments have been made without a legal mandate. The Paris Agreement directly binds State Parties but does not impose obligations on non-state actors such as companies. To meet their obligations under the Paris Agreement, State Parties submit and regularly review domestic climate plans—the Nationally Determined Contributions.[46] Nations implement those plans through legislation, regulation and policy. For instance, the Inflation Reduction Act,[47] a package of clean energy subsidies and environmental justice measures set to catalyze trillions of dollars in private investments,[48] is projected to bring the United States closer to meeting its net-zero target.[49] And while Executive Order 14057—as part of the Biden Administration's whole-of-government approach to climate change[50]—sets a net-zero emissions policy in federal procurement,[51] those measures do not seek to inflict the government's own target on firms. Instead, the government's policy seeks to change incentives, support a nationwide transition, and reach the United States' commitments under the Paris Agreement. Generally, we know of no legal mandate currently, in any country, requiring companies to have or pursue a net-zero commitment. The sole policy contemplated in this respect may be found in the European Union and will progressively start to apply from 2027 only.[52]

Corporate net-zero commitments are, thus, made voluntarily by businesses. The reasons for making such pledges differ and may be difficult to disentangle. In his 2021 annual letter to CEOs, BlackRock CEO Larry Fink emphasized both the risks and benefits of the transition. According to him, "There is no company whose business model won't be profoundly affected by the transition to a net zero economy."[53] As such, pursuing a net-

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[43] Brooke Masters and Patrick Temple-West, *The real impact of the ESG backlash*, FIN. TIMES (Dec. 4, 2023), https://www.ft.com/content/a76c7feb-7fa5-43d6-8e20-b4e4967991e7; *ESG – Navigating Past the Noise*, THOMSON REUTERS INSTITUTE (Dec. 4, 2023), https://www.thomsonreuters.com/en-us/posts/esg/esg-navigating-past-the-noise/; Tim Paradis and Alex Nicoll, *ESG backlash dominated headlines in 2023, but it's still 'quietly' reshaping industries behind the scenes*, BUSINESS INSIDER (Dec. 6, 2023), https://www.businessinsider.com/companies-still-doing-esg-work-despite-politics-criticism-2023-11?international=true&r=US&IR=T; Garnet Roach, *ESG backlash fails to deter investors, research finds*, IR MAGAZINE (Oct. 9, 2023), https://www.irmagazine.com/investor-perspectives/esg-backlash-fails-deter-investors-research-finds.
[44] On the notion of ESG, see Elizabeth Pollmann, *The Making and Meaning of ESG*, ECGI LAW WORKING PAPER N°659/2022 (Oct. 2022).
[45] ECIU & University of Oxford, *Net Zero Stocktake 2023* (2023); Magali A. Delmas, Kelly Clark, Tyson Timmer & Moana McClellan, *The State of Corporate Sustainability Disclosure* (Aug. 26, 2022), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4194032.
[46] Paris Agreement, art. 3, Apr. 22, 2016.
[47] Pub. L. 117–169.
[48] *The US is poised for an energy revolution*, GOLDMAN SACHS (Apr. 17, 2023), https://www.goldmansachs.com/intelligence/pages/the-us-is-poised-for-an-energy-revolution.html
[49] John Larsen et al., *A Turning Point for US Climate Progress: Assessing the Climate and Clean Energy Provisions in the Inflation Reduction Act*, Rhodium Group (August 12, 2022), https://rhg.com/research/climate-clean-energy-inflation-reduction-act/; John Bistline et al., *Emissions and energy impacts of the Inflation Reduction Act*, 380 SCIENCE 1324 (2023).
[50] Exec. Order No. 14008, 86 FR 7619.
[51] Exec. Order No. 14057, 86 FR 70935.
[52] *Cf.* Part III.
[53] Larry Fink, *2021 Letter to CEOs*, BLACKROCK (2021), https://www.blackrock.com/corporate/investor-relations/2021-larry-fink-ceo-letter.

zero target amounts to mitigating the transition risks associated with climate change while seizing transition opportunities. As the transition to net-zero requires a wholesale economic transformation, Sir Nicholas Stern of the London School of Economics similarly noted in a report to the G7 that the transition "represents not a cost or a burden but the greatest economic, business, and commercial opportunities in modern times."[54] Other reasons may include corporate citizenship, changes in market and consumer preferences, and regulatory pressures.

One should not underestimate the role of investor demand in driving corporate net-zero commitments. Indeed, "ESG" (environmental, social, and governance) investing rose to prominence primarily because of investor demand. In this respect, climate change plays a key role. With portfolios in the billions or even trillions of dollars, institutional investors may have portfolio-wide exposure to climate physical and transition risks. Such exposure provides a massive incentive to support an orderly and swift transition to net-zero.[55] This is especially the case for pension funds that seek long-term value creation, and insurance firms particularly exposed to losses stemming from physical risks. Many institutional investors, including asset owners like CalPERS and asset managers like State Street, have themselves committed to net-zero greenhouse gas emissions. In 2022, BlackRock projected that 75% of its assets will be aligned with net-zero by 2030.[56] Even amidst the "ESG backlash" led by some state treasurers and attorneys general in the United States, a survey conducted in 2023 by the asset manager Schroders found that half of institutional investors around the world have a net-zero commitment, with another 30% with other climate targets or plans to set such targets.[57] Such investors have a powerful voice to drive corporate net-zero commitments, through engagement with investees, advocacy and shareholder activism, and of course voting power in shareholder general meetings.[58] An illustrious example of the latter is the successful campaign by the activist hedge fund Engine No. 1, supported by the Californian pension fund CalSTRS, to elect new directors to the board of ExxonMobil who have experience in the energy transition.[59] Institutional investors have also built activist coalitions to support firms' climate action, such as Climate Action 100+, the Institutional Investors Group on Climate Change (IIGCC), and the Net-Zero Asset Owners Alliance.

In a matter of years, net zero is becoming part of firms' social license to operate.[60] Only a couple of years after ExxonMobil CEO Darren Woods in 2020 mocked the cascading

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[54] Nicholas Stern, G7 LEADERSHIP FOR SUSTAINABLE, RESILIENT AND INCLUSIVE ECONOMIC OPPORTUNITY AND GROWTH: AN INDEPENDENT REPORT REQUESTED BY THE UK PRIME MINISTER FOR THE G7, at 2 (2021).

[55] Madison Condon, *Externalities and the Common Owner*, 95 WASH. L. REV. 1 (2024).

[56] Simon Jessop, *BlackRock expects 75% of company and govt assets to be net zero-aligned by 2030*, REUTERS (Apr. 14, 2022), https://www.reuters.com/business/sustainable-business/blackrock-expects-75-company-govt-assets-be-net-zero-aligned-by-2030-2022-04-14/.

[57] Schroders, *Institutional Investors Study 2023: Global Report*, at 29 (2023), https://publications.schroders.com/view/602051523/.

[58] Madison Condon, *'Green' Corporate Governance*, in Jeffrey N. Gordon and Wolf-Georg Ringe (eds), THE OXFORD HANDBOOK OF CORPORATE LAW AND GOVERNANCE (OUP, forthcoming).

[59] Matt Philipps, *Exxon's Board Defeat Signals the Rise of Social-Good Activists*, N.Y. TIMES (June 6, 2021), https://www.nytimes.com/2021/06/09/business/exxon-mobil-engine-no1-activist.html.

[60] On the continued relevance of such a concept, see David M. Bersoff, Sandra J. Sucher, & Peter Tufano, *How Companies Should Weigh In on a Controversy*, HARV. BUS. REV. (Mar. 2024), https://hbr.org/2024/03/how-companies-should-weigh-in-on-a-controversy.

corporate net-zero commitments as a mere "beauty competition,"[61] he had to announce his firm's own commitment to net-zero greenhouse gas emissions, albeit one that solely concerns ExxonMobil's operations and leaves its supply chain emissions unaddressed.[62] Companies and financial institutions that decide to stay out of this movement do so at the expense of growing reputational and liability risks, as well as an increased cost of capital.[63] Following banks' pledges to net-zero greenhouse gas emissions, Australian coal companies had to turn to more expensive private credit for financing and refinancing after being cut off from bank lending in Australia.[64] Even those financial groups, such as Allianz or State Street, that decided to withdraw from net-zero alliances in the face of strong political headwinds in the United States did not lead them to withdraw their net-zero commitments.[65]

Since the Paris Agreement, corporate net-zero commitments have become a business standard that is increasingly part of the social license to operate. Firms initiated this business standard in the absence of a legal mandate from governments, as the result of corporate citizenship, investor demand, or to mitigate the risks and to seize the financial opportunities arising from the transition to a sustainable economy.

B. Disciplining corporate net-zero commitments: attempts at self-regulation and accountability

Despite the importance of corporate net-zero commitments, making such a pledge is not by itself a panacea. Since corporate net-zero commitments are purely voluntary without a government mandate, they are not backed up by any clear legal obligations for meeting them. The case could be made, though, that an empty commitment could be interpreted as material half-truths or misstatements within the scope of securities law.[66] Notwithstanding, a commitment is more a signal to investors and society than a guarantee of the company's seriousness in pursuing a strategy aligned with the objectives of the Paris Agreement. Firms that pledge to net-zero create expectations for themselves and for which they should be held accountable.[67]

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[61] Kevin Crowley, *Exxon CEO Calls Rivals' Climate Targets a 'Beauty Competition'*, BLOOMBERG (Mar. 5, 2020), https://www.bnnbloomberg.ca/exxon-ceo-calls-rivals-climate-targets-a-beauty-competition-1.1400957.

[62] *Exxon Pledges Net-Zero Carbon Emissions from Operations by 2050*, CNBC NEWS (Jan. 18, 2022), https://www.cnbc.com/2022/01/18/exxon-pledges-net-zero-carbon-emissions-fromoperations-by-2050.html.

[63] On the cost of capital, see e.g. Sudheer Chava, *Environmental Externalities and Cost of Capital*, 60 MANAGEMENT SCIENCE 2223 (2014).

[64] Sharon Klyne and Megawati Wijaya, *Australia Coal Miners Woo Private Capital as Banks Get Leery*, BLOOMBERG (Mar. 20, 2024), https://www.bloomberg.com/news/articles/2024-03-20/australian-coal-miners-woo-private-capital-as-banks-get-leery?embedded-checkout=true&sref=KC8MQm0x.

[65] Venilia Amorim, *Allianz discloses first net-zero transition plan with 2030 targets*, INVESTMENT & PENSIONS EUROPE (Sept. 8, 2023), https://www.ipe.com/allianz-discloses-first-net-zero-transition-plan-with-2030-targets/10068742.article.

[66] Arnold S. Jacobs, *What Is a Misleading Statement or Omission Under Rule 10b-5?*, 42 FORDHAM L. REV. 243 (1973). See also Nicolas Grabar, Jared Gerber and Charity E. Lee, *Potential Litigation Risks Associated with the SEC's Proposed Climate-Disclosure Rule*, HARVARD LAW SCHOOL FORUM ON CORPORATE GOVERNANCE (Oct. 5, 2022), https://corpgov.law.harvard.edu/2022/10/05/potential-litigation-risks-associated-with-the-secs-proposed-climate-disclosure-rule/.

[67] Daniel C. Esty & Nathan de Arriba-Sellier, *Zeroing In On Net-Zero: From Soft Law to Hard Law in Corporate Climate Change Pledges* 94 U. COLO. L. REV. 435 (2023).

Committing lightly to net-zero may harm businesses if commitments are perceived to amount to greenwashing and may also expose them to reputational and legal risks as serious as (if not, more serious than) for companies that lack such a commitment. Strategic litigation in Europe against the oil and gas company Shell or banks such as ING and BNP Paribas illustrate these risks.[68] In *Milieudefensie v Royal Dutch Shell*, a violation of the duty of care under Dutch tort law was alleged against Shell leading the District Court of The Hague to require the Shell group to reduce its GHG emissions by 45% by 2030.[69] Shell's prior net-zero commitment only implied emissions reduction of 30% by 2030.[70] Companies in the United States are exposed to similar liability risks.[71] Multiple suits against misleading climate-related labelling have thus been filed against companies such as ExxonMobil, JBS Foods and Danone.[72]

The problem lies in the lack of a clear definition of net-zero at the corporate level, as well as the lack of a generally applicable net-zero pathway for most industries, especially hard-to-abate industries that are most carbon-intensive. Such an absence should not come as a surprise: after decades of building up GHG emissions in the atmosphere without constraints, the transition to net-zero entails rapid and unprecedented reductions in such emissions.[73] Beyond that, building a sustainable economy signifies a fundamental transformation of the global economy's energy foundations,[74] a recognition that negative environmental externalities are no longer acceptable,[75] and an acknowledgment that available planetary resources are scarce and must be managed with care and sobriety to ensure their renewal generation after generation.[76] Building a sustainable economy is a tall order for businesses whose social responsibility has long been reduced to the sole perspective of making profits, regardless of the social and environmental consequences.[77]

As corporate net-zero commitments respond in part to demand from shareholders and stakeholders, they have been the subject of rising scrutiny from these constituencies who are pressing companies to elaborate on their strategies, plans, and targets. The limits

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[68] Thom Wetzer, Rupert Stuart-Smith, and Arjuna Dibley, *Climate risk assessments must engage with the law*, 383 SCIENCE 152 (2024).
[69] Rb. Den Haag May 26, 2024, ECLI:NL:RBDHA:2021:5337 (Milieudefensie/Royal Dutch Shell) (Neth.).
[70] Id.
[71] Karin Rives, *Companies face 'massive growth' in litigation over climate claims*, S&P GLOBAL (July 6, 2023), https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/companies-face-massive-growth-in-litigation-over-climate-claims-76429935; United Nations Environmental Programme, *Climate litigation more than doubles in five years, now a key tool in delivering climate justice* (July 27, 2023), https://www.unep.org/news-and-stories/press-release/climate-litigation-more-doubles-five-years-now-key-tool-delivering. See also Lisa Benjamin, *The Road to Paris Runs Through Delaware: Climate Litigation and Directors' Duties*, 2020 UTAH L. REV. 313 (2020); Douglas A. Kysar, *The Duty of Climate Care*, 73 DEPAUL L. REV. 487 (2024); Nadav Orian Peer, *Corporate Climate Targets: Between Science and Climate Washing*, 33 N.Y.U. ENV'T L. J. (forthcoming).
[72] See *Mass. v. ExxonMobil* (No. SJC-13211); *Dorris v. Danone Waters of Am., No. 22-8717 (NSR), 2024 WL 112843* (S.D.N.Y. Jan. 10, 2024); *State of New York v. JBS USA Food Company and JBS USA Food Company Holdings*, No. 450682/2024 (N.Y. Sup. Ct. Feb. 28, 2024).
[73] IPCC, SPECIAL REPORT: GLOBAL WARMING OF 1.5°C, 5 (2018).
[74] IEA, NET ZERO BY 2050. A ROADMAP FOR THE GLOBAL ENERGY SECTOR (May 2021).
[75] E. Donald Elliott and Daniel C. Esty, *The End Environmental Externalities Manifesto: A Rights-Based Foundation for Environmental Law*, 29 N.Y.U. ENV'T L. J. 505 (2021).
[76] IPBES, GLOBAL ASSESSMENT REPORT ON BIODIVERSITY AND ECOSYSTEM SERVICES OF THE INTERGOVERNMENTAL SCIENCE-POLICY PLATFORM ON BIODIVERSITY AND ECOSYSTEM SERVICES (2019); Katherine Richardson et al., *Earth beyond six of nine planetary boundaries*, 9 SCIENCE ADVANCES (2023).
[77] Milton Friedman, CAPITALISM AND FREEDOM, 133–36 (1962).

of such voluntary arrangements have been exposed under such rising scrutiny.[78] For instance, some companies only set distant commitment dates without interim targets, thus questioning the extent of their ambition.[79] Companies may also narrow their targets to direct GHG emissions (scope 1 emissions) and those generated by the energy consumed (scope 2) while not taking responsibility for the indirect emissions and their overall carbon footprint.[80] Besides, companies have been relying extensively on carbon offsets to set and pursue their climate pledges,[81] despite widespread concerns about the integrity of these offsets and their improper use to replace emission reductions.[82] Also, some corporate net-zero commitments may not be backed by changes in business models, corporate practices, or production processes.[83]

In response, multiple self-regulatory frameworks have emerged to discipline corporate net-zero commitments.[84] These frameworks are developed by various stakeholders, from international organizations to firms themselves. While these frameworks serve the same objective—the integrity and meaningfulness of corporate net-zero commitments—they follow different perspectives and interests. Whereas international organizations seek primarily to rally businesses around an objective of net-zero,[85] non-profits are primarily preoccupied with tangible climate action in the face of urgency.[86] By contrast, investors are interested in transparency and mitigating physical and transition risks.[87] And businesses are pursuing self-regulation to ensure a level playing field, deter

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[78] Joeri Rogelj et al., *Net-Zero Emissions Targets Are Vague: Three Ways to Fix*, 591 NATURE 365 (2021).
[79] Newclimate Inst. et al., NET ZERO STOCKTAKE 2022, 28–31 (2022).
[80] Edgar G. Hertwich and Richard Wood, *The Growing Importance of Scope 3 Greenhouse Gas Emissions from Industry*, 13 ENV'T RSCH. LETTERS (2018); Madison Condon, *What's Scope 3 Good For?* 56 UC DAVIS L. REV. 1921. See also Michael Corkery and Julie Creswell, *Corporate Climate Pledges Often Ignore a Key Component: Supply Chains*, N.Y. TIMES (Nov. 3, 2021), https://www.nytimes.com/2021/11/02/business/corporateclimate-pledge-supply-chain.html; David Fickling and Elaine He, *The Biggest Polluters Are Hiding in Plain Sight*, BLOOMBERG (Sept. 30, 2020), https://www.bloomberg.com/graphics/2020-opinion-climate-global-biggestpolluters-scope-3-emissions-disclosures.
[81] Sarah McFarlane, *Carbon Offsets Are Used by Companies Seeking 'Net Zero,' but Concerns Persist*, WALL ST. J. (Oct. 24, 2021), https://www.wsj.com/articles/carbon-offsets-are-used-by-companies-seeking-netzero-but-concerns-persist-11635079489.
[82] Patrick Greenfield, *Carbon Offsets Used by Major Airlines Based on Flawed System, Warn Experts*, THE GUARDIAN (Aug. 25, 2021), https://www.theguardian.com/environment/2021/may/04/carbon-offsets-used-bymajor-airlines-based-on-flawed-system-warn-experts; *Heavy Reliance on Carbon Offsets Undermines Net-Zero Goals*, UN CLIMATE SUMMIT (Oct. 22, 2021), https://unclimatesummit.org/heavy-reliance-on-carbon-offsets-undermines-net-zero-goals; Frances Schwartzkopff, *'Crazy' Carbon Offsets Market Prompts Calls for Regulation*, BLOOMBERG (Jan. 6, 2022), https://www.bloomberg.com/news/articles/2022-01-06/-crazy-carbon-offsets-market-prompts-calls-for-regulation?sref=KC8MQm0x;
[83] Daniel C. Esty & Nathan de Arriba-Sellier, *Zeroing In On Net-Zero: From Soft Law to Hard Law in Corporate Climate Change Pledges* 94 U. COLO. L. REV. 464-465 (2023).
[84] See, more generally, Michael P. Vandenbergh, *Private Environmental Governance*, 99 CORNELL L. REV. 129 (2013).
[85] The United Nations' High-Level Expert Group on the Net Zero Emissions Commitments Of Non-State Entities, INTEGRITY MATTERS: NET ZERO COMMITMENTS BY BUSINESSES, FINANCIAL INSTITUTIONS, CITIES AND REGIONS (2022); Race to Zero, *Criteria*, https://racetozero.unfccc.int/system/criteria/(last visited Aug. 4, 2024); ISO, NET-ZERO GUIDELINES (2022).
[86] Carbone 4, *Net Zero Initiative - Diving into the Net Zero Initiative Guidelines* (Apr. 2020), https://www.carbone4.com/en/publication-referentiel-nzi; Cambridge Institute for Sustainability Leadership, *Targeting Net Zero: A strategic framework for business action* (Dec. 2020), https://www.cisl.cam.ac.uk/resources/low-carbon-transformation-publications/targeting-net-zero.
[87] Climate Action 100+, *Net-Zero Company Benchmark*, https://www.climateaction100.org/net-zero-company-benchmark/ (last visited Aug. 4, 2024).

free-riding, and tackle common challenges in the net-zero pathway.[88] These private actors, whether they act individually or as coalitions, act *de facto* as self-regulatory standard-setters. To this end, they provide *benchmarks* for assessing the meaningfulness of net-zero commitments based on generally applicable criteria. These benchmarks are usually not static but are strengthened over time.[89] Beyond providing mere benchmarks, a few private standard-setters also require *validation* of the net-zero targets. Besides, some have, against those frameworks, tracked or ranked companies according to the integrity of their corporate net-zero commitments.[90]

Net-zero benchmarks tend to share the same framework of reference. The net-zero framework of reference essentially revolves around the Paris Agreement for the policy. The universal objective it sets of limiting the rise in global average temperatures to 1.5ºC through net-zero greenhouse gas emissions has indeed led some to consider corporate net-zero commitments from the perspective of their alignment to this temperature goal ("1.5ºC-aligned"), or the international agreement more broadly ("Paris-aligned").[91] The common framework of reference also seeks to harness the scientific analyses of the International Panel on Climate Change (IPCC) since the IPCC provides authoritative assessments of the state of climate change and pathways for mitigation and adaptation. In the wake of the Paris Agreement, the IPCC published a *Special Report on Global Warming of 1.5°C* evidencing the necessary achievement of "deep emissions reductions" and "rapid, far reaching and unprecedented changes in all aspects of society" to reach net-zero greenhouse gas emissions by mid-century and limit the impacts of climate change.[92] The IPCC's comprehensive *Sixth Assessment Report* has since then further documented the evolution of climate change, the urgency of action, and associated challenges such as maladaptation.[93] Thus, corporate pledges are often discussed and scrutinized in view of these assessments, to ascertain whether corporate climate targets are "science-based."[94] It is notably on the basis of the IPCC's assessments that the International Energy Agency (IEA) sketched the roadmap for energy decarbonization, providing further guidance for net-zero commitments and analyses.[95] Some initiatives, such as *Oxford's Principles for Carbon*

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[88] The Climate Pledge, *The Pledge Commitments*, https://www.theclimatepledge.com/us/en/the-pledge.html (last visited Aug. 4, 2024); GFANZ, *Membership*, https://www.gfanzero.com/membership/ (last visited Aug. 4, 2024).

[89] See e.g. Climate Action 100+, *Net-Zero Company Benchmark,* https://www.climateaction100.org/net-zero-company-benchmark/ (last visited Aug. 4, 2024); Exponential Roadmap Initiative, *The 1.5°C Business Playbook. Version 3.0* (2023), https://exponentialroadmap.org/wp-content/uploads/2023/10/1.5C-Business-Playbook-Version-3.0.pdf.

[90] Climate Action 100+, *Net-Zero Company Benchmark*, https://www.climateaction100.org/net-zero-company-benchmark/ (last visited Aug. 4, 2024); ECIU, Data Driven EnviroLab, NewClimate Institute and Oxford Net-Zero, *Net-Zero Tracker*, https://zerotracker.net (last visited Aug. 4, 2024); WWF, *Turning Blue Chips Green: A Review of FTSE100 Net Zero Commitments* (Oct. 2021), https://www.wwf.org.uk/sites/default/files/2021-10/Net_zero_scorecard_report_0.pdf.

[91] See e.g. Anders Bjørn, Joachim Peter Tilsted, Amr Addas & Shannon M. Lloyd, *Can Science-Based Targets Make the Private Sector Paris-Aligned? A Review of the Emerging Evidence*, 8 CURR. CLIM. CHANGE REP. 53 (2022); Saphira Rekker et al., *Evaluating fossil fuel companies' alignment with 1.5°C climate pathways*, 13 NATURE CLIM. CH. 927 (2023).

[92] IPCC, SPECIAL REPORT: GLOBAL WARMING OF 1.5°C (2018).

[93] IPCC, CLIMATE CHANGE 2023: SYNTHESIS REPORT. CONTRIBUTION OF WORKING GROUPS I, II AND III TO THE SIXTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (2023).

[94] See on this notion, Nadav Orian Peer, *Corporate Climate Targets: Between Science and Climate Washing*, 33 N.Y.U. ENV'T L. J. (forthcoming).

[95] IEA, NET ZERO BY 2050. A ROADMAP FOR THE GLOBAL ENERGY SECTOR (May 2021).

Offsetting,[96] have sought to complement this common framework of reference, with varying degrees of success.

While it would be futile to attempt a comprehensive review of the vast array of the private frameworks for corporate net-zero commitments, SBTi's *The Corporate Net-Zero Standard* (hereafter referred to as: "Net-Zero Standard") provides a prime example both because of its conspicuous ambition and because it is considered to be one of the most widely-accepted frameworks.[97] The Net-Zero Standard's goal is to provide "a standardized and robust approach for corporate to set net-zero targets that are aligned with climate science."[98] The procedure followed by SBTi for the elaboration of this document is revealing of the extent of its standard-setting ambition,[99] mirroring in some ways administrative procedure. The benchmarks were developed in collaboration with SBTi's own advisory group and a dedicated group of experts from civil society, academia, and the for-profit sector. SBTi then released a first draft subject to a consultation, on which it launched a trial with some eighty companies before opening a second consultation. The final document was then "launched" in the fall of 2021, concurrently with the COP26 climate summit in Glasgow.

Businesses with net-zero targets may apply for validation of their net-zero commitments from the SBTi if they follow the criteria, the "target validation protocol," and "compliance policy" set by SBTi.[100] They initiate this process by signing a commitment letter with SBTi. Upon signature, firms are listed on the SBTi's target dashboard. They have 24 months from the date of signature to develop a "target" that fulfills the criteria developed with SBTi and to submit it for official validation.[101] If they withdraw their commitments or fail to submit a satisfactory target, they can be delisted.[102] Thus, in 2024, 239 companies, including Microsoft and Walmart, were delisted by SBTi as they missed the deadline to submit their net-zero targets.[103] Still, it is important to note that while SBTi imposes ex-ante validation, it does not require ex-post verification of the achievement of the corporate net-zero commitments.

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[96] Myles Allen et al., *The Oxford Principles for Net Zero Aligned Carbon Offsetting*, UNIVERSITY OF OXFORD (Sept. 2020), https://www.smithschool.ox.ac.uk/sites/default/files/2022-01/Oxford-Offsetting-Principles-2020.pdf.

[97] Camilla Hodgson, *Science-Based Arbiter of Corporate Climate Targets Sets Out New Rules*, FIN. TIMES (Oct. 27, 2021), https://www.ft.com/content/903a8476-3efd-49af-b012-193063e29194; Ed Ballard & Dieter Holger, *Rush of 'Science-Based' Climate Pledges Puts Pressure on Group That Checks Them*, WALL ST. J. (Nov. 11, 2021), https://www.wsj.com/articles/rush-of-science-based-climate-pledges-puts-pressureon-group-that-checks-them-11636632890; Camilla Hodgson, *Climate Targets Oversight Group Under Scrutiny over Its Own Governance*, FIN. TIMES (Feb. 1, 2022), https://www.ft.com/content/75527cce-9748-4aec-b6e6-7c7828460d2a.

[98] SBTi, THE CORPORATE NET-ZERO STANDARD. VERSION 1.0, at 5 (Oct. 2021).

[99] Id; SBTi, *Standard Operating Procedure (SOP) for Development of SBTi Standards*, (Dec. 14, 2023), https://sciencebasedtargets.org/resources/files/SBTi-Procedure-for-Development-of-Standards_V1.0.pdf.

[100] SBTi, *Commitment Compliance Policy*, (Nov. 2022), https://sciencebasedtargets.org/resources/files/Commitment-Compliance-Policy.pdf; SBTi, *Target Validation Protocol for Near-term Targets*, (Mar. 2023), https://sciencebasedtargets.org/resources/files/Target-Validation-Protocol.pdf.

[101] SBTi, *Commitment Compliance Policy*, 2 (Nov. 2022).

[102] Id. at 4.

[103] Kenza Bryan and Michael Pooler, *Companies take step back from making climate target promises*, FIN. TIMES (Mar. 15, 2024), at https://www.ft.com/content/3ebc5b56-a8f0-4fcd-99dd-9023d7a20013.

SBTi's Net-Zero Standard provides its own definition of "corporate net zero" as the fulfillment of two conditions: (1) reductions of scopes 1, 2, and 3 greenhouse emissions to zero or a residual level consistent with 1.5ºC-aligned pathways, and (2) the neutralization of any of these residual emissions at the target year and any subsequent emissions.[104] On this basis, the four elements for a corporate net-zero target identified by SBTi are (1) a "near-term science-based target," (2) a long-term net-zero target, (3) "mitigation beyond the value chain",[105] and (4) the neutralization of the residual emissions.[106] The requirement of mitigation beyond the value chain recognizes the "critical role" of businesses in accelerating the transition and the "societal expectation" to mitigate climate change.[107] Based on these generally applicable principles, the Net-Zero Standard provides for differentiated sectoral pathways that follow specific criteria and guidance.[108] For instance, SBTi expects more rapid reductions in GHG emissions culminating in 97% abatement for the energy sector, while setting a more moderate expectation of 80% of GHG emissions reduction for the forestry, land, and agriculture sector.[109]

A five-step approach is recommended by SBTi for target-setting: (1) selecting an (ambitious) baseline year, (2) calculating the company's emissions, (3) setting target boundaries, (4) choosing a target year, and (5) calculating the targets.[110] Nearly 40 criteria formulated in mandatory terms and a dozen recommendations compose the Net-Zero Standard. They set (regularly reviewed) requirements for the organizational boundary, emission coverage, GHG emission accounting, formulation, horizon, and ambition of the targets, as well as their reporting and, where applicable, recalculation.[111] Thus, a compliant target should, among other things and irrespective of the industry: be defined at the group level; cover all relevant GHG over scopes 1, 2, and 3; exclude carbon credits and avoided emissions; assume linear reductions; achieve net-zero greenhouse gas emissions no later than 2050, and; provide for regular and public progress reporting.[112] Companies engage in long and costly processes to comply with these criteria and get their targets validated by SBTi.

Beyond the sole example of SBTi's *Net-Zero Standard*, studies from Oxford-based researchers and the NewClimate Institute have sought to map some of the most important private frameworks that have been developed and it found substantial alignment among

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[104] SBTi, THE CORPORATE NET-ZERO STANDARD. VERSION 1.0, at 8 (Oct. 2021).
[105] According to SBTi, it is necessary for firms that commit to net-zero to go "above and beyond" their own value chain to tackle the climate crisis and support the orderly transition to a sustainable economy, see SBTi, RAISING THE BAR: AN SBTI REPORT ON ACCELERATING CORPORATE ADOPTION OF BEYOND VALUE CHAIN MITIGATION (BVCM) (Feb. 2024).
[106] Id.
[107] Id. at 10.
[108] Id. at 16; see e.g. SBTi, *Setting 1.5°C-aligned science-based targets: Quick start guide for Electric Utilities* (June 2020), https://sciencebasedtargets.org/sectors/power; SBTi, *The SBTi Financial Institutions Net-Zero Standard: Conceptual Framework And Initial Criteria. Consultation Draft* (June 2023), https://sciencebasedtargets.org/resources/files/The-SBTi-Financial-Institutions-Net-Zero-Standard-Consultation-Draft.pdf.
[109] SBTi, THE CORPORATE NET-ZERO STANDARD. VERSION 1.0, at 18 (Oct. 2021).
[110] Id. at 20 et seq.
[111] Id. 39-46; SBTi, *SBTi Corporate Net-Zero Standard Criteria. Version 1.2* (Mar. 2024), https://sciencebasedtargets.org/resources/files/Net-Zero-Standard-Criteria.pdf.
[112] Importantly, SBTi is currently undertaking a comprehensive review of the Net-Zero Standard, which should be finalized by the end of 2024.

them.[113] Many frameworks have in common the coverage of all emission scopes, the requirement of interim targets, the need for alignment with 1.5°C pathways, the limited role attributed to carbon offsets, and the demand that companies have lobbying and advocacy efforts consistent with their pledges. McGivern et al. also identified a general demand for decarbonization strategies, regular and transparent reporting, and, to a lesser extent, board oversight among private standard-setting frameworks.[114] These studies highlight a consensus among benchmarks for corporate net-zero commitments, not only regarding the criteria themselves but also the parameters that are scrutinized.

Despite the multiplicity of benchmarks, their ambition, and the consensus level, they fall short of providing for genuine self-regulation and ensuring the meaningfulness of corporate net-zero commitments. Private standard-setters define criteria and methodology on their own terms in the absence of public accountability and without guarantee that those are genuinely based on scientific evidence or will take into account the different public interests at stake.[115] Furthermore, like corporate pledges themselves, these benchmarks are non-binding. Adherence to the benchmarks or membership in the alliances is therefore strictly voluntary, and their varying degrees of stringency can encourage arbitrage. For instance, even though twelve thousand companies are part of the U.N.-backed Race-To-Zero campaign, only some five hundred corporate net-zero targets were validated by the SBTi.[116]

And while some of these private standard-setters are highly respected, the frameworks they set lack enforceability for the participating organizations. The lack of penalties is a classic problem in self-regulation, which makes it inept.[117] At most, businesses are removed or delisted, but the private standard-setters cannot force compliance. The limits of these benchmarks also stem from the widespread absence of *ex-post* verification of the fulfillment of the criteria they set, as is the case for SBTi.[118] While non-profit initiatives like the *Net Zero Tracker* scrutinize corporate net-zero commitments,[119] the scope of their

[113] Alexis McGivern et al., *Defining Net Zero for organizations: How do climate criteria align across standards and voluntary initiatives?*, OXFORD SMITH SCHOOL OF ENTERPRISE AND THE ENVIRONMENT (2022), https://netzeroclimate.org/wp-content/uploads/2022/10/SUMMARY-REVIEW-21-OCT-FINAL.pdf; NewClimate Institute, Oxford Net Zero, Energy & Climate Intelligence Unit and Data-Driven EnviroLab, *Net Zero Stocktake 2023. Assessing the status and trends of net zero target setting across countries, sub-national governments and companies* (June 2023), https://ca1-nzt.edcdn.com/Reports/Net_Zero_Stocktake_2023.pdf?v=1696255114.
[114] Alexis McGivern et al., *Defining Net Zero for organizations: How do climate criteria align across standards and voluntary initiatives?*, OXFORD SMITH SCHOOL OF ENTERPRISE AND THE ENVIRONMENT (2022), https://netzeroclimate.org/wp-content/uploads/2022/10/SUMMARY-REVIEW-21-OCT-FINAL.pdf.
[115] Camilla Hodgson, *Climate Targets Oversight Group Under Scrutiny over Its Own Governance*, FIN. TIMES (Feb. 1, 2022), https://www.ft.com/content/75527cce-9748-4aec-b6e6-7c7828460d2a; Khalid Azizuddin, *IPCC scientists say SBTi approach not sufficient to meet net-zero targets*, RESPONSIBLE INVESTOR (Apr. 26, 2024), https://www.responsible-investor.com/ipcc-scientists-say-sbti-approach-not-sufficient-to-meet-net-zero-targets/.
[116] SBTi, *Net-zero ambition 500: companies across the globe committed to leading the science-based net-zero transformation* (Nov. 17, 2023), https://sciencebasedtargets.org/blog/500-companies-net-zero-ambition.
[117] See Elinor Olstrom, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION (1990).
[118] See Daniel C. Esty & Todd Cort, *Corporate Sustainability Metrics: What Investors Need and Don't Get*, 8 J. ENV'T INVESTING 11, 35 (2017); Diane Strauss & Aisha I. Saad, *Can Investors Rely on Corporate Sustainability Commitments?*, in Esty and Cort, VALUES AT WORK: SUSTAINABLE INVESTING AND ESG REPORTING (Palgrave MacMillan 2020).
[119] Net Zero Tracker, https://zerotracker.net (last visited Aug. 4, 2024).

efforts is limited. They can only judge the businesses' efforts based on their voluntary disclosure, which can be the result of cherry-picking. Finally, none of these private initiatives prevent businesses from watering down or reneging upon their climate pledges. Instead, companies have been withdrawing from net-zero alliances and coalitions when membership criteria became stricter and political conditions more difficult while keeping their net-zero commitments.[120,121]

II. The regulation of corporate net-zero commitments

A. Disclosure regulation

Regulators have recently entered the fray to enhance transparency. Corporate net-zero commitments provide an important signal to investors and the public about the firm's business strategy. From a risk perspective, they are key in addressing transition risks arising from climate change mitigation; from risks associated with changes in market and consumer preferences to policy, regulatory, and litigation risks. Regulation also aims to address critiques related to greenwashing and the lack of substance in corporate net-zero commitments that could deceive investors and the public at large. As a result, regulators are increasingly requiring disclosure from companies about the details of their climate targets, transition plans, and carbon offsets. However, regulatory efforts are not solely aimed at corporate net-zero commitments. Instead, the regulation of such commitments is part of broader efforts to require more consistent, reliable, and comparable disclosure from businesses on their exposure to climate risks and, in some instances, their sustainability performance.[122]

1. The SEC's climate disclosure rules

The SEC's climate disclosure rules provide a prime specimen of such regulations. They trail the examples of the European Union's Corporate Sustainability Reporting Directive (CSRD) and the International Sustainability Standards Board (ISSB), which seeks to harmonize sustainability disclosure requirements at the international level. The SEC rules are narrower as they only require publicly listed companies to disclose exposure to climate risks as well as their processes and actions to mitigate such risks, where material.[123] The SEC does not

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[120] Ian Smith and Kenza Bryan, *Lloyd's and five big insurers quit sector's net-zero initiative*, FIN. TIMES (May 26, 2023) https://www.ft.com/content/4940831b-72ec-459d-aaee-0d86fb7593df; Simon Jessop and Ross Kerber, *JPMorgan, State Street quit climate group, BlackRock steps back*, REUTERS (Feb. 16, 2024), https://www.reuters.com/sustainability/sustainable-finance-reporting/jpmorgan-fund-arm-quits-climate-action-100-investor-group-2024-02-15/.

[121] Withdrawals took place amidst the growing political anti-ESG backlash particularly as state Attorney Generals started threatening coalition members of legal action for antitrust violations. On this issue, see Amelia Miazad, *From Zero-Sum to Net-Zero Antitrust*, 56 UC DAVIS L. REV. 2067 (2023).

[122] Daniel C. Esty & Quentin Karpilow, *Harnessing Investor Interest in Sustainability: The Next Frontier in Environmental Information Regulation*, 36 YALE J. REG. 625 (2019); Madison Condon, Sarah Ladin, Jack Lienke, Michael Panfil & Alexander Song, *Mandating Disclosure of Climate-Related Financial Risk*, 23 N.Y.U. J. LEGIS. & PUB. POL'Y 745 (2021); George S. Georgiev, *The Market-Essential Role of Corporate Climate Disclosure*, 56 UC DAVIS L. REV. 2105 (2023).

[123] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21668 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 210, 229, 230, 232, 239, & 249).

seek to "regulate," let alone mandate corporate net-zero commitments, strictly speaking. Instead, it aims to require transparency for companies that have voluntarily made such pledges. Disclosure regulations such as the SEC's broadly follow the soft-law model set by the Taskforce for Climate-related Financial Disclosures (TCFD),[124] which itself has been criticized for providing a loose disclosure framework that precludes comparative analysis and benchmarking.[125]

The SEC's climate disclosure rules lay down specific requirements regarding climate targets, transition plans, and carbon offsets.[126] In those respects, it closely follows the proposal the SEC initially made in 2022.[127] The final SEC rules prescribe the disclosure of any information necessary to understanding the material impact (or likely material impact) of climate-related targets. Specifically, the SEC rules require descriptions of the scope of activities covered by the targets, the unit of measurement used, the defined time horizon of the target, whether the target relates to a policy or regulatory goal, the baseline and means of tracking progress, and a "qualitative description of how the registrant intends to meet its climate-related targets or goals."[128] Additionally, in-scope companies will need to annually disclose "any progress made toward meeting the target or goal and how any such progress has been achieved," notably through a description of the actions taken to this end.[129] Detailed disclosure of the amount, nature, and source of carbon offsets or renewable energy credits (RECs) is also expected if those are used as a "material component" of the firms' plans to achieve their targets.[130] Where transition plans were adopted "to manage a material transition risks," descriptions of the plan and any actions taken annually under the plan are to be reported.[131] Similarly, the rules would require descriptions of the use of internal carbon prices and scenario analyses used to assess the impact of risks.[132] The SEC rules further ask in-scope companies to describe, in the presence of a climate target or a transition plan, whether and how the board of directors oversees the progress in achieving it.[133]

The final SEC rules differ from the original proposal in an important aspect. They only require disclosure of climate-related targets or goals to investors where "such target or goal has *materially* affected or is reasonably likely to materially affect the registrant's business, results of operations, or financial condition."[134] While the initial proposal covered any climate-related target, a materiality qualifier was introduced to make clear that minor, immaterial targets need not be disclosed, as well as to respond to some concerns regarding

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[124] See TCFD, RECOMMENDATIONS OF THE TASKFORCE FOR CLIMATE-RELATED FINANCIAL DISCLOSURES (June 2017).
[125] Daniel C. Esty & Todd Cort, *Toward Enhanced Corporate Sustainability Disclosure: Making ESG Reporting Serve Investor Needs*, 16 VA. L. & BUS. REV. 423 (2022)
[126] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21701-21705, 21720-21726 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 210, 229, 230, 232, 239, & 249).
[127] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 87 Fed. Reg. 21334 (proposed Apr. 11, 2022) (to be codified at 17 C.F.R. § 210, 229, 232, 239, & 249).
[128] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21916 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 229.1504(b)).
[129] Id. (to be codified at 17 C.F.R. § 229.1504(c)).
[130] Id. at 21913 and 21916 (to be codified at 17 C.F.R. §§ 210.14-02(e) & 229.1504(d)).
[131] Id. at 21916 (to be codified at 17 C.F.R. § 229.1504(e)).
[132] Id. (to be codified at 17 C.F.R. § 229.1502(f) and (g)).
[133] Id. at 21915 (to be codified at 17 C.F.R. § 229.1501).
[134] Id. at 21916 (to be codified at 17 C.F.R. § 229.1504(a)).

the authority of the SEC or the compliance burden that would result from the rules.[135] In the initial proposal, the SEC noted that targets regarding "the reduction of GHG emissions or regarding energy usage, water usage, or revenues from low-carbon products" as examples of targets concerned by the disclosure requirement. No such example is given in the final rules although the SEC implied in the discussion of the rules that GHG emissions targets should be regarded as material.[136] Besides, targets should be disclosed "due to material expenditures or operational changes that are required to achieve the target or goal."[137]

While the introduction of materiality in the final rules may reduce the scope of climate-related disclosure considered material,[138] corporate net-zero commitments should in general be regarded as material as suggested by the SEC. These commitments represent an important strategic decision on the part of the business and could imply wholesale business transformation. As such, they also respond to the definition of materiality according to the Supreme Court's case law in securities litigation: information is "material if there is a substantial likelihood that a reasonable shareholder would consider it important in deciding how to vote," or if "disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information" available to investors in reaching a voting or investment decision.[139] In this view, there are numerous evidences of the materiality of corporate net-zero commitments. For instance, 91% of Boeing's shareholders adopted in 2022 a resolution backed by the board supporting a net-zero pathway including scope 3 GHG emissions.[140] The same year, ExxonMobil shareholders voted to request of an audited report of the net-zero transition's financial impacts.[141] More recently, the net-zero plan of the oil & gas company Woodside was rejected by nearly 60% of its shareholders for being insufficient.[142] By contrast, immaterial targets could be those that are less essential the corporate business model such as water stress in cases where the business model does not rely on water use.

2. The SEC climate disclosure in international perspective

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[135] Id. at 21723 et seq.

[136] Id. at 21724.

[137] Id. at 21723.

[138] It is important to note that the materiality qualifier has been introduced throughout the SEC rule and not solely in respect of climate targets. On materiality, see generally George S. Georgiev, *Too Big to Disclose: Firm Size and Materiality Blindspots in Securities Regulation*, 64 UCLA L. REV. 602 (2017); and George S. Georgiev, *The SEC's Climate Disclosure Rule: Critiquing the Critics*, 50 RUTGERS L. REC. 101 (2022-2023).

[139] See *TSC Industries v. Northway, Inc.*, 426 U.S. 438, 449 (1976) ("[T]here must be a substantial likelihood that the disclosure . . . would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information made available."); *Basic Inc. v. Levinson*, 485 U.S. 224, 231–32 (1988) (adopting the *TSC* formulation in the context of securities fraud actions under Rule 10b-5). See also Aisha I. Saad & Diane Strauss, *A New "Reasonable Investor" and Changing Frontiers of Materiality: Increasing Investor Reliance on ESG Disclosures and Implications for Securities Litigation*, 17 BERKELEY BUS. L.J. 391 (2020); Nick G. Schwake, *What Is Material?: Creating a Conducive Environment for Climate-Related Information Disclosure in the Oil and Gas Industry*, 108 IOWA L. REV. 1959 (2023).

[140] As You Sow, *91% of Boeing Shareholders Support Net-Zero Climate Report* (May 3, 2022), https://www.asyousow.org/press-releases/2022/5/3/boeing-shareholders-support-net-zero-climate-report.

[141] Kevin Crowley, *Exxon Investors Back IEA Net-Zero Reporting in Surprise Vote*, BLOOMBERG (May 25, 2022), https://news.bloomberglaw.com/esg/exxon-investors-back-more-climate-disclosures-in-surprise-vote.

[142] Keane Bourke, *Woodside shareholders reject company's climate action plan in sign of investor discontent*, ABC NEWS AUSTRALIA (Apr. 24, 2024), https://www.abc.net.au/news/2024-04-24/woodside-shareholders-reject-climate-action-plan/103764840.

The release of the SEC rules has prompted multiple comments about the extent to which it had been watered down compared to the initial proposal. Some critics have particularly underlined that the final rules fall short of international standards related to the disclosure of climate-related risks.[143] While this may be true when considering the SEC rules as a whole, the rules remain broadly in line with international standards when it comes to the disclosure of climate targets. In particular, the SEC rules mirror the requirements of the ISSB's climate standard and is broadly consistent with the European Union's CSRD. All three standards follow the TCFD's template, even if this template is apparent from both the ISSB and the CSRD, and appears more muted in the structure of the SEC's rules.

Like the ISSB, the SEC considers materiality in accordance with the Supreme Court's case law from the traditional, user-oriented and financial perspective.[144] This narrow conception contrasts with the European views on materiality under the CSRD, which encompasses both financial materiality and *impact materiality* (i.e., the materiality of the actual or potential, positive or negative impact of the business on the environment and society), considered together as "double materiality."[145] The SEC does not provide for any clear definition of "climate-related target or goal" so as not to be exclusive. By contrast, the ISSB's climate disclosure standard defines relevant targets as "targets set by the entity, and any targets it is required to meet by law or regulation, to mitigate or adapt to climate-related risks or take advantage of climate-related opportunities, including metrics used by the governance body or management to measure progress towards these targets."[146] The definition under the CSRD is broadly similar, although it refers not only to "risks" and "opportunities" but also "impacts" in line with its double materiality perspective.[147]

Like the SEC rules, the ISSB climate disclosure standard requires disclosure of the scope of activities covered, the metric used to set the target, the defined time horizon of the target, the baseline, and how it is informed by policy.[148] However, the ISSB adds two items that were originally included in the SEC's proposal but were since removed in the SEC rules: (1) the disclosure of milestones and interim targets, and (2) if the target is quantitative, disclosure of whether it is an absolute target or an intensity target.[149] In both respects, the SEC considered that such a specification was not necessary in its final climate disclosure rules, as disclosure would be "elicited" by some of the requirements, including materiality.[150] Still, in absence of a clear obligation, in-scope companies lack incentives to

[143] *Cf. supra* note 30.
[144] According to § 18 of the ISSB's S1 standard, "information is material if omitting, misstating or obscuring that information could reasonably be expected to influence decisions that primary users of general purpose financial reports make on the basis of those reports"; see IFRS Foundation, IFRS S1 GENERAL REQUIREMENTS FOR DISCLOSURE OF SUSTAINABILITY-RELATED FINANCIAL INFORMATION (June 2023).
[145] Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards, 8-11.
[146] IFRS Foundation, IFRS S2 CLIMATE-RELATED DISCLOSURES, § 18(c) (June 2023).
[147] Commission Delegated Regulation (EU) 2023/2772, at 78.
[148] IFRS Foundation, IFRS S2 CLIMATE-RELATED DISCLOSURES, § 33(a)-(e).
[149] Id. § 33(f) and (g).
[150] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21724-21725 (Mar. 28, 2024).

provide information on these items and are ultimately free to decide whether or not to include them and the level of details they provide.

Although both the SEC and the ISSB demand reporting on progress in achieving the target, the ISSB goes further in requiring disclosure of the means of tracking progress against the target, which is only demanded in general terms by the SEC, as well as information regarding the validation of the target and its methodology by a third party—an issue overlooked in the SEC rules.[151] Still, the ISSB surprisingly lacks a requirement to disclose the strategy of the business in achieving the target which is present under the SEC rules. The CSRD applies similar disclosure requirements to the ISSB and the SEC, although it is more specific regarding particularly the disclosure of methodologies and assumptions used to define the target, whether those are science-based, and the involvement of stakeholders in target setting.[152]

Unlike the SEC rules, both the ISSB and the CSRD sets obligations specifically related to GHG emission targets, which include net-zero targets. Information regarding the coverage of greenhouse gases, emission scopes, and whether it is derived using a sectoral decarbonization approach is required by both the CSRD and the ISSB.[153] The CSRD is even more prescriptive. Unlike the ISSB, which requires disclosure of the gross or net nature of the target, the CSRD requires GHG emission targets to be disclosed as gross targets (i.e., excluding GHG removals, carbon offsets, or avoided emissions).[154] In addition, under the CSRD, such targets *must* be disclosed in absolute value, be subject to disaggregate disclosure according to the emission scope, and include target values for 2030 (as well as 2050, if applicable) and every five-year interval until the target date. Firms must disclose whether their targets are "compatible with limiting global warming to 1.5°C", and describe their assumptions as well as the expected "decarbonization levers."[155] Curiously, while the SEC does not set distinct requirements for GHG emission targets, it prescribes more detailed disclosure standards than the ISSB for carbon offsets, except regarding the verification of carbon offsets, which is required by the ISSB but not explicitly by the SEC.[156]

Beyond the reporting requirements applicable to corporate net-zero commitments, the main difference between the SEC rules and the standards adopted by its international counterparts relates to the absence of an obligation for companies, regardless of their commitments, to disclose material scope 3 GHG emissions.[157] This obligation was contemplated at the proposal stage but was ultimately withdrawn from the SEC climate disclosure rules due to business and political opposition.[158] This makes the SEC rules as a whole a much less ambitious disclosure framework than the EU's CSRD and the ISSB after

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[151] IFRS Foundation, IFRS S2 CLIMATE-RELATED DISCLOSURES, § 34 and 35.
[152] Commission Delegated Regulation (EU) 2023/2772, at 55-56 and 78.
[153] Id. at 78; IFRS Foundation, IFRS S2 CLIMATE-RELATED DISCLOSURES, § 36(a)-(d).
[154] Commission Delegated Regulation (EU) 2023/2772, at 78.
[155] Id.
[156] IFRS Foundation, IFRS S2 CLIMATE-RELATED DISCLOSURES, § 36(e).
[157] For a critic, see Christopher L. Puglisi, *SEC's Proposed Climate-Related Disclosure Rule: Comment Analysis and Recommendation for Scope 3 Emissions*, 5 CORP. & BUS. L. J. 84 (2024).
[158] David Gelles, *How a Climate Rule Got Watered Down*, N.Y. TIMES (Mar. 5, 2024), https://www.nytimes.com/2024/03/05/climate/how-a-climate-rule-got-watered-down.html.

both endorsed mandatory scope 3 emission disclosure where material.[159] Scope 3 emissions are emissions that do not result directly from a business's operations or energy consumed but stem from the value chain.[160] While the importance of scope 3 emissions depends on the industry and the business model, they are generally material for businesses and represent the bulk of their emissions in most sectors.[161] Besides the CSRD and the ISSB, California's SB 253 also compels large companies to disclose their scope 3 GHG emissions by 2027, *regardless* of the materiality of these emissions.[162] The SEC rules depart therefore significantly from other international standards in this respect and were rightly criticized therefor.[163]

Still, the SEC rules may not exempt firms with corporate net-zero commitments to disclose their scope 3 GHG emissions, despite the lack of a blanket disclosure obligation. Indeed, numerous corporate net-zero commitments cover scope 3 emissions; climate pledges that fail to cover scope 3 emissions and account for their value chain's climate risks and impacts are widely considered insufficient.[164] Indeed, according to Deloitte, scope 3 emissions average over 70% of the carbon footprint of many businesses.[165] From the moment that scope 3 GHG emissions are covered by a corporate net-zero commitment, firms could be obliged to disclose such emissions even under the lax regime provided by the SEC rules. Indeed, the latter introduced an obligation for firms to report annually "any progress made towards meeting" their targets and "how any such progress has been achieved."[166] In other words, companies with corporate net-zero commitments will have to report any progress made towards meeting net-zero greenhouse gas emissions and how they achieved, or failed to achieve, emission reductions. Now take the frequent instance where a company has set a net-zero target that is not limited to its scope 1 and 2 emissions but also includes scope 3 emissions. That is for example the case of CVS Health, who aims to halve its scope 1, 2, and 3 GHG emissions by 2030 and achieve net-zero by 2050 within the same parameters.[167] If a corporate net-zero commitment covers scope 3 GHG

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[159] IFRS Foundation, IFRS S2 CLIMATE-RELATED DISCLOSURES, § 29(a); Commission Delegated Regulation (EU) 2023/2772, at 80-81.
[160] Madison Condon, *What's Scope 3 Good For?*, 56 U.C. Davis Law Review 1921 (2023).
[161] Edgar Hertwich and Richard Wood, *The growing importance of scope 3 greenhouse gas emissions from industry*, 13 ENVIRON. RES. LETT. (2018); Gireesh Shrimali, *Scope 3 Emissions: Measurement and Management*, 4 THE JOURNAL OF IMPACT AND ESG INVESTING (2024); Frédéric Ducoulombier, *Understanding the Importance of Scope 3 Emissions and the Implications of Data Limitations*, 4 THE JOURNAL OF IMPACT AND ESG INVESTING (2024). See also Deutsche Bank Research, *What are Scope 3 emissions and why are they important?*, (Apr. 2021) https://www.dbresearch.com/PROD/RPS_EN-PROD/PROD0000000000518185/dbSustainability_Spotlight%3A_What_are_Scope_3_emiss.pdf?undefined&realload=Cia23CrWxeDKF0EJDnD/pmydqALUCXXNciOGJh63gNNrVVgSb380B8tCQfba1RaN.
[162] Cal. Health & Saf. Code § 38532.
[163] See Virginia Harper Ho, *US ESG Regulation in Trasnational Context*, in CORPORATE PURPOSE, CSR AND ESG: A TRANS-ATLANTIC PERSPECTIVE (Jens-Hinrich Binder, Klaus J. Hopt, Thilo Kuntz, eds., Oxford Univ. Press, forthcoming 2024). See also *Sierra Club, Earthjustice Challenge SEC's Weakened Climate Risk Disclosure Rule*, EARTHJUSTICE (Mar. 13, 2024), https://earthjustice.org/press/2024/sierra-club-earthjustice-challenge-secs-weakened-climate-risk-disclosure-rule.
[164] Daniel C. Esty & Nathan de Arriba-Sellier, *Zeroing In On Net-Zero: From Soft Law to Hard Law in Corporate Climate Change Pledges*, 94 U. COLO. L. REV. 454-455 (2023).
[165] *Zero in on... Scope 1, 2 and 3 emissions*, DELOITTE (May 12, 2021), https://www.deloitte.com/uk/en/issues/climate/zero-in-on-scope-1-2-and-3-emissions.html. See also Madison Condon, *What's Scope 3 Good For?* 56 UC DAVIS L. REV. 1921.
[166] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21916 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 229.1504(c)).
[167] CVS Health, HEALTHY 2030. 2023 IMPACT REPORT (2024), 35.

emissions, the firm would under the SEC rules have to report "any progress made towards meeting" that goal of reducing scope 3 GHG emissions. As a result, even in absence of a general rule to disclose scope 3 GHG emissions, firms with corporate net-zero commitments will be legally obliged to report progress made towards meeting their target, including by reporting information on progress regarding their scope 3 emissions.

The analysis and comparison of the disclosure requirements set by the SEC rule, the ISSB's climate disclosure standard, and the CSRD shows remarkable consistency among regulators (see Table 1). With the ISSB's ambition of becoming the world's baseline sustainability disclosure standard, other jurisdictions will likely adopt similar regulatory frameworks, including concerning the regime of "targets" that govern the reporting of corporate net-zero commitments. ISSB standards are indeed expected to be adopted by some jurisdictions, in one form or another, including Canada, Singapore, Brazil, and Australia.[168] The SEC's rules appear to be broadly on par with international standards adopted by counterparts. And even though commentators have emphasized the absence of a scope 3 disclosure requirement from the SEC's rules, the latter may nonetheless entail such an obligation for companies that have included scope 3 emissions in their own climate commitments as abovementioned.

Mandatory reporting regimes, whether in the United States or abroad, are primarily concerned with reporting related to corporate net-zero commitments and climate targets more broadly without requiring companies to set such targets. On the one hand, the lack of such a requirement could lead to an uneven playing field and impose an additional burden on companies that have corporate net-zero commitments compared to those whose GHG emissions are higher and have no intention of reducing them. Moreover, those companies with corporate net-zero commitment could decide to retract or weaken their targets in order to escape disclosure. On the other hand, such renunciations could prove useful, as they would shed light on those businesses that may not have been seriously intending to pursue net-zero commitments in the first place, expose them to consequences, and help investors make useful decisions.

Besides, even if reporting requirements are in principle mandatory, the materiality qualifier opens the door for businesses to decide that their commitments are not material and to withhold specifications. Indeed, materiality is supposed to be determined by facts and circumstances, and companies need to be able to demonstrate how they determined materiality to prevent SEC enforcement. While net-zero commitments should generally be considered material, the discretion in reporting could be conducive to so-called "green-hushing" or "green-bleaching,"[169] leading companies to conceal their targets and plans or, most likely, some of their elements to avoid either political hostility or invasive scrutiny from

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[168] Rochelle Toplensky, *Pro Take: Forget the SEC, International Climate Reporting Standards Could Become the Global Baseline*, WALL ST. J. (June 26, 2023), https://www.wsj.com/articles/pro-take-forget-the-sec-international-climate-reporting-standards-could-become-the-global-baseline-ea01d05a. See, however, Nathan de Arriba-Sellier, *The ISSB's new standards: breaking ground or low hanging fruits?*, ECGI BLOG (July 13, 2023), https://www.ecgi.global/blog/issb's-new-standards-breaking-ground-or-low-hanging-fruits.

[169] This could particularly be the case for the biggest firms, see George S. Georgiev, *Too Big to Disclose: Firm Size and Materiality Blindspots in Securities Regulation*, 64 UCLA L. REV. 602 (2017).

regulators, investors, and the public at large.[170] Still, the SEC clarified that specifications on all material targets captured by the SEC rules should be disclosed, regardless of whether these targets were made public in the first place. Keeping material targets secret would, according to the SEC, "fail to protect investors by potentially precluding their access to information that is important to make informed investment and voting decisions."[171] It is not necessary that the target is formally adopted by the CEO or by the board for the disclosure requirement to apply.[172] Furthermore, concealment could expose companies not only to enforcement actions by the regulator, but also liability. Indeed, materiality is first and foremost a concept inherited from investor fraud cases under Rule 10b-5.[173]

Regardless of materiality, the SEC rules are imperiled by judicial challenges in a fast-moving domestic legal ground. Even though the rules are strictly limited to disclosure requirements on material climate-related financial risks, they have been framed as an enterprise in illegal environmental regulation by an incompetent authority imposing some activists' burdensome and frivolous demands on businesses.[174] The recent outcome of the *West Virginia v. Environmental Protection Agency* (2022) case not only unveiled the environmental skepticism of the Roberts court–in contradiction with the earlier and more open decision in *Massachusetts v. Environmental Protection Agency* (2007)–,[175] but also introduced a new, so-called major questions doctrine that insists on "clear congressional authorization" for affirming agency rulemaking.[176] The Supreme Court pushed its new approach to the Administrative State further in *Loper Bright* (2024) as it overturned the famous *Chevron* deference doctrine.[177] *Loper Bright* calls on judges to assess whether an agency has authority to take action on the basis of a "best reading" of the statutory text. While this may limit the potency of challenges relying on the sole major questions doctrine, agencies' rulemaking authority is being increasingly questioned. The SEC's climate rules could be one of the victims of the new judicial doctrine if judges consider that the broad and longstanding statutory delegation for the SEC to prescribe rules that are "necessary or appropriate in the public interest or for the protection of investors" is insufficient.[178]

Yet, even if the SEC rules fall victim of domestic judicial challenges, U.S. companies will not be mechanically exempted from climate disclosure requirements. Indeed, for those

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[170] Huw Jones, *'Greenhushing' and 'green bleaching' blur sanctions targets – watchdog*, REUTERS (Dec. 4, 2023), https://www.reuters.com/sustainability/greenhushing-green-bleaching-blur-sanctions-targets-watchdog-2023-12-04/. See also Roshaan Wasim, *Corporate (Non)Disclosure of Climate Change Information*, 119 COLUM. L. REV. 1311 (2019).
[171] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21723-21724 (Mar. 28, 2024).
[172] Id. at 21724.
[173] *Basic v. Levinson*, 485 U.S. 224, 231-32 (1988) (citing *TSC Industries, Inc. v. Northway, Inc.*, 426 U.S. 438, 448-49 (1976)).
[174] See e.g. Statement from Commissioner Hester M. Peirce, *We are Not the Securities and Environment Commission - At Least Not Yet* (Mar. 21, 2022), https://www.sec.gov/news/statement/peirce-climate-disclosure-20220321; Jay Clayton & Patrick McHenry, *The SEC's Climate-Change Overreach*, WALL ST. J. (Mar. 20, 2022); Lawrence Cunningham et al., *Comment Letter on SEC Climate Disclosure Proposal by 22 Law and Finance Professors* (Apr. 25, 2022), https://www.sec.gov/comments/s7-10-22/s71022-20126528-287180.pdf
[175] *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497 (2007).
[176] *West Virginia v. Environmental Protection Agency*, 597 U.S. 697 (2022).
[177] *Loper Bright Enterprises v. Raimondo*, 603 U.S. ___ (2024) (overturning *Chevron U.S.A., Inc. v. Nat. Res. Def.rCouncil, Inc.* 467 U.S. 837 (1984)).
[178] See, e.g., 15 U.S.C. §§ 77g, 77j, 77s(a), 78c, 78i, 78j, 78l, 78m(a), 78n(a), 78o(d), 78w(a); see also *Nat. Res. Def. Council, Inc. v. Sec. & Exch. Comm'n*, 606 F.2d 1031, 1045 (D.C. Cir. 1979).

who have significant cross-border operations, they may be caught by EU rules or ISSB standards once they are implemented, if not Californian law. The EU CSRD will apply to all companies that are publicly listed in the European Union as well as to those that earn significant income in the European Union.[179] This also applies to groups, and reporting needs to be done at consolidated level so that even if a business has only a minor footprint in the EU from the group perspective, it will have to report against the CSRD from the moment it exceeds the income threshold. Besides, both the CSRD and ISSB impose requirements that suppose collecting and reporting data beyond the company's formal boundaries, such as scope 3 emissions. Besides, the CSRD forces reporting of information across not only the company's own operations, but also its value chain.[180] The extraterritoriality of the new sustainability reporting regimes could have wide-ranging effects for U.S. companies, either because they are directly subjected to foreign rules, or due to the requests of their business counterparts that must report information across their value chains.[181]

Table 1: Consistency of international disclosure requirements for climate targets

Standard / Disclosure Item for Climate Targets	SEC Climate Disclosure Rules	EU Corporate Sustainability Reporting Directive (CSRD)	ISSB S2 Climate-related Disclosure Standard	UK Climate Financial Disclosure Regulations 2022[182]
Scope of activities & emissions	X	X	X	
Baseline & target year	X	X	X	
Interim targets		X	X	
Consistency w/ policy	X	X	X	
Strategy to implement	X	X		
Validation	(indirectly)	X	X	
Quantification of progress	X	(indirectly)	X	X
Role of offsets	X	X	X	
Description of transition plans	X	X	X	

[179] The CSRD applies to companies that either have annual net income in the EU in excess of EUR 150mn for each of the last two consecutive financial years, or have a subsidiary or branch in the EU that generated in the preceding financial year income exceeding EUR 40mn. See Art. 1(14) of Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting.

[180] Id. art. 1(4).

[181] See also Stephen Park, *Untangling the Extraterritoriality of ESG Regulation*, 49 N.C. J. INT'L L. 399 (2024).

[182] The Companies (Strategic Report) (Climate-related Financial Disclosure) Regulations 2022 (SI 2022/31). They must be distinguished from the guidance of the Financial Conduct Authority (FCA), which only applies on a comply-or-explain basis, unlike the other requirements presented here. The latter has recently announced that it intends to transpose the ISSB's standards in UK law. See UK Department for Business & Trade, POLICY PAPER: FRAMEWORK AND TERMS OF REFERENCE FOR THE DEVELOPMENT OF UK SUSTAINABILITY REPORTING STANDARDS (May 16, 2024).

B. Regulation of Transition Planning

Whereas climate targets form the basis of any corporate net-zero commitments, the latter have increasingly been developed in the form of transition plans.[183] Such plans seek to operationalize the corporate net-zero commitments, spell out its implications, and, in some instances, integrate it into the business strategy. The growing importance of transition plans, including from the perspective of investors,[184] has encouraged regulators to require specific disclosure. The TCFD made no mention of "transition plans" in its original recommendations, but it issued dedicated guidance in its 2021 report on metrics, targets *and* transition plans, conceding that "users of climate-related financial disclosures [...] increasingly seek decision- useful information on organiz ations' plans and progress to move to a low-carbon economy, referred to as transition plans, including the use of associated climate-related metrics and targets to track such progress."[185] According to the non-profit CDP, nearly 6,000 companies reported having a transition plan in 2023, with another 8,200 expecting to have one by 2025.[186] The SEC has included transition plans in the scope of its climate disclosure rules and laid out specific reporting obligations, while the European Union has opted for more prescriptive requirements than both its U.S. counterpart and the ISSB, which was made apparent by the analysis of disclosure regulation. This approach culminates with a legal mandate for the largest companies doing business in the EU *to have a transition plan* aligned with the EU's own goal of climate neutrality by 2050. In other words, the EU will require companies to pursue a corporate net-zero commitment through transition planning.

In general, companies must disclose transition plans where they have such plans. The scope of the SEC's requirement is quite extensive as it compels the description of "a transition plan to manage a material transition risk," and not only transition plans backing a climate-related target. The extent and level of specification of the required description is not discussed. In addition, specific actions taken under the plan must be disclosed annually to provide information on the progress of the plan over time; that includes "how such actions have impacted the registrant's business, results of operations, or financial condition."[187] The ISSB similarly requires description of transition plans but, unlike the SEC, does not go as far as requiring annual reporting of the actions taken in accordance with the plan.[188] By contrast, the CSRD provides for more detailed and prescriptive requirements for the disclosure of "transition plans for climate change mitigation."[189] The most specific items relate to the actions and investments planned for the implementation of the transition

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[183] CDP, *1.5°C still the goal: businesses disclosing climate transition plans jumps nearly 50%* (June 19, 2024), https://www.cdp.net/en/articles/media/15c-still-the-goal-businesses-disclosing-climate-transition-plans-jumps-nearly-50.

[184] On the importance of transition plans, see generally Daniel C. Esty & David A. Lubin, *Toward a Next Generation of Corporate Sustainability Metrics*, in Esty and Cort, VALUES AT WORK: SUSTAINABLE INVESTING AND ESG REPORTING (Palgrave MacMillan 2020), at 98, 104.

[185] TCFD, *Guidance on Metrics, Targets, and Transition Plans*, 2 (Oct. 2021), https://assets.bbhub.io/company/sites/60/2021/07/2021-Metrics_Targets_Guidance-1.pdf.

[186] CDP, *1.5°C still the goal: businesses disclosing climate transition plans jumps nearly 50%* (June 19, 2024), https://www.cdp.net/en/articles/media/15c-still-the-goal-businesses-disclosing-climate-transition-plans-jumps-nearly-50.

[187] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21915 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 229.1502(e)(1)).

[188] IFRS Foundation, IFRS S2 CLIMATE-RELATED DISCLOSURES, § 14(a)(iv).

[189] Commission Delegated Regulation (EU) 2023/2772, at 75.

plans, but the CSRD also requires discussion of the risk and management of possible stranded assets.[190] Companies would further have to disclose how the transition plan is embedded in the business strategy and financial planning, as well as if the plan has been approved by a management body.[191] In absence of a transition plan, the company should also make public whether (and when) it intends to adopt one.[192]

The CSRD's approach echoes the one being developed in the United Kingdom, which contemplates detailed standards for the disclosure of transition plans in accordance with the framework of the Transition Plan Taskforce (TPT) at the same time that it implements ISSB's standards.[193] The TPT's disclosure framework strikes as more detailed and ambitious than the European Union's. The TPT's detailed recommendations are built alongside three pillars. The first pillar, Ambition, amounts to defining the foundations and objectives of the transition plan, discussing the strategic ambition, its implications for the business model and value chain as well as the key assumptions on which it is built.[194] The second pillar, Action, lays out the transition plan's implementation strategy, from business operations and financial planning to the engagement strategy with suppliers, customers, and stakeholders more broadly.[195] The third pillar, Accountability, would require disclosure of relevant metrics and targets as well as details of how the transition plan is governed and overseen.[196] The TPT has released additional sector guidance for financial institutions, as well as for the energy, food, and metals and mining sectors. As transition plans are an element of the most important international disclosure frameworks, including those of the SEC and ISSB, the TPT's overt objective is that its recommendations will convince other jurisdictions beyond the United Kingdom to integrate such disclosures as part of their efforts to adopt and implement the ISSB's standards.[197] While the ISSB has recently announced taking over the TPT, it has not gone as far as promising to introduce the TPT recommendations in its own standards.[198] Still, the TPT's initial ambition was to *mandate* transition plans by financial institutions and eventually businesses – one that may be achieved by the new UK government who pledged to do just that.[199]

To date, only the European Union introduced requirements for companies to have net-zero transition plans. The corporate net-zero mandate is not to be found in the CSRD,[200] but in its sister legislation, the Corporate Sustainability Due Diligence Directive (CS3D), which has been recently adopted and is due to gradually apply from 2027 and have

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[190] Id. at 75-76.
[191] Id. at 76.
[192] Id.
[193] Financial Conduct Authority, PRIMARY MARKET BULLETIN 45 (Aug. 10, 2023).
[194] Transition Plan Taskforce, TPT DISCLOSURE FRAMEWORK, 21-23 (Oct. 2023).
[195] Id. at 24-29.
[196] Id. at 30-37.
[197] Id. at 38-42.
[198] IFRS, *ISSB delivers further harmonisation of the sustainability disclosure landscape as it embarks on new work plan* (June 24, 2024), https://www.ifrs.org/news-and-events/news/2024/06/issb-delivers-further-harmonisation-of-the-sustainability-disclosure-landscape-new-work-plan/.
[199] UK Labour Party, *Labour's Manifesto: Make Britain a clean energy superpower* (2024), https://labour.org.uk/change/make-britain-a-clean-energy-superpower/.
[200] However, the wording of the CSRD is ambiguously formulated, as it implies that companies are required to report transition plans aligned with the EU's objective of climate neutrality by 2050. See Directive (EU) 2022/2464, Art. 1(7).

significant extraterritorial effects.[201] The general principle of the CS3D is to impose due diligence obligations on the largest companies to minimize the negative impacts of their activities on the environment and societies.[202] Article 22 of the CS3D requires in-scope businesses to "adopt and put into effect a transition plan for climate change mitigation which aims to ensure, through best efforts, that the business model and strategy of the company are compatible with the transition to a sustainable economy and with the limiting of global warming to 1.5 °C in line with the Paris Agreement and the [EU] objective of achieving climate neutrality."[203] This provision further details the elements to be included in the company's transition plan, including scientifically sound targets for 2030 and every five years up to 2050, a description of the "decarbonization levers identified and key actions planned," a description and quantification of the investments supporting the action plan, and a description of corporate governance concerning the plan.[204] Exposure to fossil fuels should also be considered in the plan.[205] Article 22(3) further provides that transition plans are to be updated annually, including by describing the progress made by the business in achieving its targets. And while the adoption of the transition plan must be supervised by national authorities,[206] the directive is silent on the regime applicable for the implementation of the transition plan.

While the CS3D has mandated the principle of transition plans, the CSRD goes further in requiring disclosure related to businesses' transition plans. Alike the CS3D, the CSRD's disclosure requirements are aimed at providing an understanding of the business' "past, current, and future mitigation efforts to ensure that its strategy and business model are compatible" with the EU's climate neutrality objective.[207] It should also provide information on the firm's exposure to fossil fuels.[208] Still, the CSRD is more extensive than the CS3D by requiring *inter alia*: information on the integration of the transition plan in the business strategy and financial planning; an assessment of "potential locked-in GHG emissions from the undertaking's key assets and products" and any plans to manage them; information and quantification of investments and funding supporting the transition plans, including capital expenditure;[209] as well as of significant investments in fossil fuels-related activities.[210] Like the CSRD, the CS3D will apply to all companies and groups, regardless of where the entity was founded and primarily operates, that earn more than EUR 450mn in net income in the European Union.[211] The bar is even lower for company franchises: the CS3D applies to them if they earn over EUR 22.5mn in royalties and EUR 80mn in net

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[201] Directive (EU) 2024/1760 of the European Parliament and of the Council of 13 June 2024 on corporate sustainability due diligence and amending Directive (EU) 2019/1937 and Regulation (EU) 2023/2859
[202] Id. Art. 5. The CS3D follows domestic due diligence laws adopted by France and Germany.
[203] Id. Art. 22(1).
[204] Id. Art. 22(1)(a)-(d).
[205] Id. Art. 22(1).
[206] Id. Art. 25(1).
[207] Commission Delegated Regulation (EU) 2023/2772, at 75.
[208] Id.
[209] The CSRD also requires detailed disclosure of investments and investment plans aligned with the EU Taxonomy, which specifies which economic activities and investments may legally qualify as "environmentally sustainable" under EU law; see Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 [2020] OJ L198/13.
[210] Commission Delegated Regulation (EU) 2023/2772, at 75-76
[211] Directive (EU) 2024/1760, Art. 2(2)(a) and (b).

income in the Union.[212] Even though those thresholds are higher than under the CSRD, significant extraterritorial effects can be expected with the CS3D, and not only with respect to transition plans as the law provides further due diligence obligations running across the supply chain.[213]

The exact relationship between the CS3D and the CSRD leaves room for interpretation. The CS3D has been the subject of recent, intense political negotiations and resulting compromises that led to a document that considerably weakened the original proposal. Important elements, such as the definition of directors' duties and the requirement of financial incentives in the implementation of the plan, have been removed from the final text.[214] In the end, the CS3D seems to provide an alternative between compliance with Article 22 and reporting a business' transition plan in accordance with the CSRD;[215] although the requirement to "put into effect" the transition plan remains grounded in the CS3D and applies regardless.[216] While the European Union leaves no choice for the largest businesses but to have and implement a transition plan, it could leave the door open to arbitrage opportunities. However, the suggested alternative is relatively unclear, as it is hardly conceivable that businesses could be required to have a transition plan in accordance with the CS3D without having to provide related disclosure and report on its implementation under the CSRD.

If the principles and objectives of corporate transition plans are established under both legislations, the parameters of those plans are to a large extent left at the discretion of businesses. Thus, neither the CS3D nor the CSRD require businesses to include scope 3 GHG emissions in their plans, nor do they preclude companies from considering carbon offsets as part of their plans, even though the reference to climate neutrality could entail a heightened ambition.[217] Notwithstanding these inconsistencies, one should note that both the CSRD and the CS3D have been adopted in the form of directives, which means that under EU law, they must be transposed by Member States (i.e., integrated into state law), giving them wide discretion in the operationalization of the law. Through transposition, EU Member States could thus set more stringent requirements than provided in the CSRD and CS3D.[218] Also, the CS3D's transition plan mandate is only planned to gradually apply from 2027. As a result, the EU may fail to provide for a genuine level playing field among companies in relation to the obligations of transitioning to net-zero greenhouse gas emissions.

Unlike the approach adopted by the SEC and ISSB, the CS3D and, to a lesser extent, the TPT disclosure framework evidence a change of regulatory approach from mere disclosure to more extensive (and burdensome) transition planning which could spill over

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[212] Id. Art. 2(2)(c).
[213] Id. Art. 3(1)(f) and (g).
[214] Shearman & Sterling, *EU Council Waters Down Corporate Sustainability Due Diligence Directive (CS3D)*, (Mar. 18, 2024), https://www.shearman.com/en/perspectives/2024/03/eu-council-waters-down-corporate-sustainability-due-diligence-directive--cs3d.
[215] Directive (EU) 2024/1760, Art. 22(2).
[216] Id. rec. 73.
[217] See also European Commission, *Proposal for a Regulation of the European Parliament and of the Council establishing a Union certification framework for carbon removals*, COM(2022)672 final (November 30, 2022).
[218] Directive (EU) 2024/1760, Art. 4(2).

beyond Europe. This is particularly true for the CS3D and CSRD, which have significant extraterritorial effects not only because they apply to large foreign companies with substantial business activity in the EU, but also because their requirements concern the value chains of in-scope companies.

C. Challenges of regulating corporate net-zero commitments

Corporate net-zero commitments are now the object of intense regulatory scrutiny. However, regulating such commitments is the easy part, even for the SEC who is facing numerous judicial challenges and had to stay its own rules pending a judicial solution.[219] The harder part comes when implementing, supervising and enforcing these new rules, regardless of whether they are disclosure standards aimed at enhancing transparency or more prescriptive requirements promoting the transition to a net-zero economy.

The materiality qualifier that applies to disclosure under the SEC rules poses challenges of its own. As only a target that "has materially affected or is reasonably likely to materially affect the registrant's business, results of operations, or financial condition" must be disclosed,[220] the rules offer opportunities for concealment. It seems very likely, as discussed, that corporate net-zero commitments would have to be disclosed, even if only because such commitments are very often trumpeted by the pledging companies themselves, if not overtly demanded by investors.[221] Still, companies could be encouraged by the new disclosure requirements to backtrack or weaken their commitments in order to limit their reporting. Furthermore, the assessment of the materiality of the target suffers from an agency problem. Although materiality is supposed to be considered from the perspective of investors, it is the company itself that determines if a particular disclosure item is to be material. The same problem applies for other disclosure items relevant for the evaluation of corporate net-zero commitments: the use of an internal carbon price,[222] and the use of carbon offsets.[223] Companies could selectively choose which details to disclose. For instance, the SEC rules only require a "*qualitative* description of how the registrant intends to meet its climate-related targets or goals."[224] In absence of specifics, the qualitative description could be kept at a minimum.

More generally, disclosure requirements related to climate targets, whether they have been adopted by the SEC, the ISSB or the European Union, largely revolve around the provision of additional non-financial disclosure. By mandating reporting of the scope of activities covered, the unit of measurement, the defined time horizon of the target and its

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[219] Andrew Ramonas & David Hood, *SEC Climate Rule Challengers Seek New Pause on Regulations*, BLOOMBERG LAW (Mar. 26, 2024), https://news.bloomberglaw.com/esg/sec-climate-rule-challengers-seek-new-pause-on-regulations.

[220] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21916 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 229.1504(a)).

[221] On the importance of voluntary disclosures from a regulatory perspective, see Lisa M. Fairfax, *Dynamic Disclosure: An Expose on the Mythical Divide between Voluntary and Mandatory ESG Disclosure*, 101 TEX. L. REV. 273 (2022).

[222] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21916 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 229.1502(g)).

[223] Id. at 21913 (to be codified at 17 C.F.R. § 210.14-02(e)).

[224] Id. at 21916 (to be codified at 17 C.F.R. § 229.1504(b)(5)).

policy alignment, and the baseline and means of tracking progress, these requirements focus on the *perimeter* of corporate net-zero commitments and climate targets, not their implementation. Even the required description of how the commitment will be met is supposed to be of "qualitative" nature under the SEC rules, illustrating the narrative quality of the information required. While information on the perimeter of the commitments can be useful at a basic level, it falls short of providing investors with a comprehensive understanding of the company's implementation of such targets. Narrative types of disclosure indeed risk being incomparable and inconsistent not only from one company to another, but also over time. And while disclosure of the implementation strategy of corporate net-zero commitments is to a limited extent required, regulators do not demand transparency on the alignment between the implementation strategy, the corporate net-zero commitment, the business strategy, and financial planning of the companies. In the absence of this requirement, one can reasonably expect that, if a conflict between the corporate net-zero commitment the business strategy and financial planning arises, the latter will prevail.

New mandatory sustainability disclosure regimes further fail to address the critical flaws of current reporting practices, which focus on backward-looking information to the detriment of forward-looking information critical for investors and the pursuit of a transition to a net-zero economy.[225] This is particularly the case of reporting requirements for corporate climate targets and transition plans. While the abovementioned regulatory regimes require disclosure of the corporate progress in achieving its net-zero target or plan, this information does not tell investors whether the company is prioritizing its net-zero commitment. Indeed, reporting progress against a target entails the *ex-post* reporting of backward-looking information, not the provision of forward-looking information. A business' previous efforts to reduce GHG emissions will not necessarily be replicated to a similar extent in the future. Currently, GHG emissions data do not provide evidence to investors and the public regarding the business' future abatement efforts, its exposure to climate-related physical and transition risks, and more generally the business' intent to adhere to its net-zero commitment. Early reduction efforts could instead be circumstantial, disguise divestments or represent the low-hanging fruit of decarbonization, masking the true impact and potential of the company's decarbonization efforts.

Transition plans are a comparatively superior disclosure requirement to climate targets as they are supposed to provide forward-looking information about the implementation pathway. However, transition plans are only required under the SEC rules and ISSB standards, if companies *have* such transition plans in the first place. Similar problems to those just mentioned also apply to reporting requirements on transition planning. Transition plans are indeed in part composed of narratives elaborating on corporate net-zero commitments. This is particularly the case under the ISSB's disclosure standard and the SEC rules, which mostly require descriptions. But it is also true to some extent for the CSRD, under which decarbonization levers and action plans are merely supposed to be explained and only a "qualitative" assessment of stranded assets is

[225] Daniel C. Esty & David A. Lubin, *Toward a Next Generation of Corporate Sustainability Metrics,* in Daniel Esty & Todd Cort (eds), VALUES AT WORK: SUSTAINABLE INVESTING AND ESG REPORTING (Palgrave MacMillan 2020), at 98, 104.

required.[226] Transition plans may further have different emission scopes or value chain coverages from a company to another. In this respect, the reporting of information in the form of narratives hinders effective comparison among businesses, thus diminishing the value of disclosure for investors. Even where quantitative disclosure is provided, such as with investments planned under the CSRD,[227] the lack of sufficient standardization in the required metric makes it difficult for investors and the public to rely on transition plans to obtain comprehensive, consistent, reliable, and comparable information to ascertain the business' intent in implementing its corporate net-zero commitment.

Moreover, supervision of climate targets and transition plans is not straightforward. Because the discussed mandatory disclosure regimes require reporting on the part of companies, they generally entail extensive obligations for auditors, where the disclosure is subject to assurance. Where only limited assurance is required, as for GHG emission reporting under the SEC rules,[228] auditors may be unprepared to assume the responsibility of challenging concealment or assessing the truthfulness and meaningfulness of climate targets and transition plans. The same applies for regulators, notably in a context of constrained budgets for administrative authorities. Budget cuts, particularly aimed at the enforcement of the Climate Disclosure Rules, hang over the SEC.[229] And the French Financial Markets Authority has warned that its budget and staffing resources for the supervision of the CSRD were "extremely constrained," reflecting broader concerns in the European Union.[230] The problem is particularly acute because the supervision of net-zero commitments and transition plans may entail multidisciplinary and science-grounded knowledge as well as skills that are not typically possessed by auditors and regulators.

Climate targets and transition plans alike are not legally binding, let alone enforceable, even where companies are required to disclose or have them. Both are long-term in nature and will take years if not decades to be implemented. If a business fails to implement its target or transition plan, investors and regulators alike lack the means to remedy such a failure.[231] Governments cannot simply sanction or remedy corporate failures to implement targets and transition plans defined by companies themselves. And legal remedies may not compensate for the missed financial opportunities, the escalating risk exposure or the excess of GHG emissions. Targets and transition plans are *a fortiori* difficult to police because of the absence of clear net-zero pathways for most industries and

[226] Commission Delegated Regulation (EU) 2023/2772, 75.
[227] Id.
[228] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21917-21918 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 229.1506).
[229] Sarah Jarvis, *GOP Spending Bill Aims To Cut SEC Budget, Nix Climate Rule*, LAW360 (June 4, 2024), https://www.law360.com/articles/1844060/gop-spending-bill-aims-to-cut-sec-budget-nix-climate-rule.
[230] Fiona McNally, *AMF resources for CSRD supervision 'extremely constrained', says French audit body*, RESPONSIBLE INVESTOR (Mar. 25, 2024), https://www.responsible-investor.com/amf-resources-for-csrd-supervision-extremely-constrained-says-french-audit-body/.
[231] In this respect, transition plans may be more appropriate in the financial sector, particularly for banks, where supervisory authorities have large, discretionary and intrusive powers, notably to impose remedies on financial institutions. It is noticeable in this respect that the European Union has introduced a specific requirement for banks to set transition plans and empowered supervisory authorities to oversee the implementation of such plans. See Directive (EU) 2024/1619 of the European Parliament and of the Council of 31 May 2024 amending Directive 2013/36/EU as regards supervisory powers, sanctions, third-country branches, and environmental, social and governance risks, Arts 1(21)(b), 1(28) and 1(35).

differences in markets, business models, and supply chains. Furthermore, they may be covered by safe harbors generally applicable to forward-looking statements that shield businesses from enforcement by private parties, such as under the Private Securities Litigation Reform Act of 1995 (PSLRA) for the United States.[232] This is indeed the case under the SEC rules for disclosures on climate targets, transition plans, use of scenario analysis, and internal carbon price.[233] Even the CS3D that mandates the adoption of net-zero transition plans is remarkably silent on the availability of investigatory powers and sanctions to supervise the implementation of transition plans. As a result, transition plans may well be ineffective in ensuring the meaningfulness of corporate net-zero commitments and the accountability of businesses.

D. The financial loophole of net-zero regulation

A more fundamental issue, a glaring loophole indeed, undermines the regulation of corporate net-zero commitments. Whether it is the SEC, the ISSB, or the European Union, regulators are providing for new mandatory sustainability disclosure regimes distinct from existing reporting requirements. The new regulations introduce a new *summa divisio* between financial reporting and sustainability reporting, with distinct requirements, disclosure items and metrics. While this distinction makes sense notably for specific needs on GHG emissions or water use, it does not respond to the basic rationale for climate disclosure. Indeed, reporting has been first and foremost justified, including by the SEC,[234] by the growing exposure of businesses to climate-related financial risks. This is the very object of the TCFD, the Taskforce for Climate-related *Financial* Disclosures.[235] Unlike the CSRD which promotes double materiality, both the SEC and the ISSB have introduced disclosure requirements on the sole basis of the *financial* materiality of climate risks. And yet, none of the new regulatory requirements focus on financial disclosures. On the contrary, financial disclosures are mostly omitted to the benefit of non-financial disclosures, such as climate disclosures.

The distinction between financial disclosures and climate disclosures creates a loophole in corporate reporting. While companies must disclose corporate net-zero commitments and the details thereof, they are not required to reflect those issues in financial disclosures, including in their financial accounts. In other words, companies are at liberty of saying one thing in their climate-related disclosures and another thing in their financial disclosures. They can provide two narratives, a story of climate transition in their non-financial disclosures, and a story amounting to business as usual in their financial disclosures. Not only are climate disclosures distinct, but they fall short of being equivalent to financial disclosures. The multiplication of narrative and qualitative disclosure prevents consistent, reliable, and comparable reporting that are useful for investors and the public.

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[232] Section 102 of the Private Securities Litigation Reform Act of 1995 (PSLRA) codified under Section 27A of the Securities Act of 1933 (15 U.S. Code § 77z–2) and Section 21E of the Securities and Exchange Act of 1934 (15 U.S. Code § 78u–5).

[233] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21918-21919 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 229.1507).

[234] Id. at 21669-21670.

[235] TCFD, RECOMMENDATIONS OF THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (June 2017).

Instead, this duality may lead to confusion, misunderstandings, criticism, and eventually litigation.

A deep dive in corporate annual reports evidences the conspicuous cognitive dissonance between the two types of disclosure, financial and non-financial. Take Duke Energy, a major utility company headquartered in Charlotte, North Carolina. Since 2019, Duke Energy has had a commitment to reach net-zero greenhouse gas emissions by 2050. In 2022, the company extended its commitment to include its scope 2 and 3 GHG emissions.[236] This corporate net-zero commitment and the clean energy transition more generally are trumpeted in many instances throughout the annual report, the 10-K of Duke Energy for 2023.[237] Yet, that is only in the narrative section of the report. A closer look at the company's financials provides a very different picture, even on the basis of limited publicly available information before the SEC climate disclosure rules start to apply. "Average remaining useful life of assets" for "natural gas transmission and distribution" is estimated at 57 years by the company, i.e. until 2080, thirty years after Duke Energy is supposed to achieve net-zero greenhouse gas emissions over scope 1, 2, and 3 emissions.[238] Furthermore, the company's cash flow statement shows recent and notable increases in investments in gas utilities and infrastructure, occurring at a faster rate than for investments in electric utilities and infrastructures.[239] Even for investment in electric generation, the net-zero ambition does not seem to be prioritized. Since 2019 – the year Duke Energy announced its net-zero commitment, the company added 1,563 megawatts in fossil fueled-electricity generation capacity, more than it did for renewables over the same period.[240]

The problem is not specific to one company. On the contrary, Duke Energy's financials are among the most transparent, due in part to the nature of its business. For instance, Alphabet, the holding of Google, is another company that has set a commitment to achieve net-zero greenhouse gas emissions for all of its operations and value chain. For that, it aims to run on "24/7 carbon free energy" by 2030 and plans to invest in "carbon removal solutions to neutralize [its] remaining emissions."[241] Yet, its annual report provides no other information regarding the environmental sustainability of its business, or its investments to achieve such objectives. Instead, it revealed in 2024 that it has been consistently off-track as its GHG emissions have continued to grow due to its energy-intensive Artificial Intelligence activities, which depend upon centralized data systems powered by electricity.[242] Similarly, General Motors whose growth strategy is based on a "zero emissions" future and a carbon neutrality goal by 2040 highlighted its intention to

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[236] Duke Energy, 2023 ANNUAL REPORT AND FORM 10-K, 53 (2024), https://s201.q4cdn.com/583395453/files/doc_financials/2024/ar/2023-annual-report.pdf.
[237] Id. at 30, 31, and 33.
[238] Id. at 154.
[239] Id. at 49.
[240] Id. at 48.
[241] Alphabet Inc., 2023 FORM 10-K, 9 (2024), https://abc.xyz/assets/43/44/675b83d7455885c4615d848d52a4/goog-10-k-2023.pdf.
[242] Akshat Rathi, *Google Is No Longer Claiming to Be Carbon Neutral*, BLOOMBERG (July 8, 2024), https://www.bloomberg.com/news/articles/2024-07-08/google-is-no-longer-claiming-to-be-carbon-neutral?embedded-checkout=true&sref=KC8MQm0x.

"expand" its offer in electrical vehicles (EVs) in its 2024 annual report,[243] yet provided little detail on how this is practically integrated into its financial expenditures. Conversely, DuPont – a top chemicals company based in Delaware – specified in its 2023 annual report the capital expenditure supporting the company's climate net-zero objective for its operations. Still, the company reported to have spent only $8mn in 2023 and estimated to spend $5mn in 2024 in climate-related actions, out of more than $600mn in capital expenditure.[244] These examples provide a glimpse into the lack of transparency including the numerous inconsistencies in financial disclosure among companies that all share a commitment to net-zero greenhouse gas emissions.

Beyond these individual examples, there is widespread evidence that corporate net-zero commitments are not reflected in financial reporting, despite their transformative nature particularly for hard-to-decarbonize industries. The non-profit Carbon Tracker has repeatedly shown the lag of financial reporting and its inconsistency with climate reporting. Surveying the financial reports of over a hundred companies in hard-to-decarbonize industries, CarbonTracker observed that less than a third of those companies considered climate change in their financial statements.[245] Six percent of the companies had estimates and assumptions that were partially aligned with the transition to net-zero in their financial reporting with the rest exhibiting no alignment.[246] The problem has been confirmed by the TCFD itself, which stated in its (final) 2023 Status Report that the TCFD-related disclosure was "four times more likely to be disclosed in sustainability reports and annual reports than in financial filings [i.e. 10-Ks]."[247] Based on this evidence, the TCFD called for more progress in including climate-related financial information in financial filings, "especially on reporting the impact of climate-related issues on companies' businesses, strategies, and financial planning, including the impact on financial statements (e.g., balance sheets, income statements), as appropriate."[248] It also encouraged companies to assess the impairment of assets with a view toward net-zero transition, citing the examples of Rio Tinto and Rolls Royce, which have already done so.[249] Generally, misalignment between financial reporting and a corporate net-zero commitment could signify that: 1) the company is not serious about its commitment; 2) the company is seeking to mislead investors, consumers, and regulators, or; 3) the company has failed to understand and integrate the consequences of this significant change.

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[243] General Motors, 2023 ANNUAL REPORT, 1, 2 (2024), https://investor.gm.com/static-files/1fff6f59-551f-4fe0-bca9-74bfc9a56aeb.
[244] DuPont de Nemours, 2023 FORM 10-K, 55, (2024), https://s23.q4cdn.com/116192123/files/doc_financials/2023/ar/2023-ar-10-k-4-5-24.pdf.
[245] Carbon Tracker and PRI, *Flying blind: The glaring absence of climate risks in financial reporting* (Sept. 2021), https://www.unpri.org/download?ac=14597; Barbara Davidson and Rob Schuwerk, *Still Flying Blind: The Absence of Climate Risk in Financial Reporting* (Oct. 2022), https://carbontracker.org/reports/still-flying-blind-the-absence-of-climate-risk-in-financial-reporting/; Barbara Davidson, *Flying Blind: In a Holding Pattern*, CARBONTRACKER (Feb. 2024), https://carbontracker.org/reports/flying-blind-in-a-holding-pattern/.
[246] Barbara Davidson, *Flying Blind: In a Holding Pattern*, CARBONTRACKER, 5 (Feb. 2024), https://carbontracker.org/reports/flying-blind-in-a-holding-pattern/
[247] TCFD, *2023 Status Report,* 2 (Oct. 2023), https://www.fsb.org/2023/10/2023-tcfd-status-report-task-force-on-climate-related-financial-disclosures/.
[248] Id. at 51.
[249] Id. at 53, 60.

A corporate net-zero commitment is transformative, particularly for companies in hard-to-abate industries. It entails a commitment from the business to make changes in its strategy, its operations, or even its business model to sharply reduce its GHG emissions and eventually eliminate its impact on climate. As a result, this commitment may have significant financial impacts. Yet, this commitment may not, and most of the time does not translate into changes in the company's financial reporting and accounting practices. New regulatory regimes do not solve this problem. Instead, regulators could aggravate the cognitive dissonance between financial disclosures and non-financial disclosures.

III. The Net-Zero Ledger: Providing for corporate accountability

Closing the loophole and addressing the challenges in the regulation of corporate net-zero commitments entails an alignment between climate-related disclosures and financial disclosures. Such an alignment, reflected in a corporate ledger through financial disclosure requirements, would guarantee the meaningfulness and transparency of corporate decarbonization efforts in a coherent way. The "Net-Zero Ledger" I propose is developed in this section.

A. Accounting for the transition by providing for the Net-Zero Ledger

The proposal of a Net-Zero Ledger seeks not to replace, but to supplement and strengthen new regulatory regimes by harnessing the potential of financial reporting toward realizing corporate net-zero commitments. Regulators could then refocus their scrutiny on the alignment between financial disclosures and non-financial disclosures, particularly in the context of corporate net-zero commitments, to address the existing loophole and limits of sustainability disclosure regulation. As discussed, a corporate net-zero commitment is transformative, particularly for companies in hard-to-abate industries. It entails a commitment from the business to make changes in its strategy, its operations, and even its business model to sharply reduce its GHG emissions and eventually eliminate its impact on climate. As a result, this commitment may have significant financial impacts, both on assets and liabilities. Yet, this commitment may not, and most of the time does not, translate into changes in the company's financial reporting and accounting practices.

The alignment between non-financial disclosures and financial disclosures is at the core of the Net-Zero Ledger proposal. It means that, where a business has made a net-zero commitment, it must be transparent about the financial implications of this commitment in its financial reporting. Financial reporting, particularly annual financial reports (10-Ks), should be aligned with the net-zero commitment. Indeed, financial reporting plays a critical role in condoning corporate short-termism.[250] However, financial reporting could instead

[250] See Alfred Rappaport, *The Economics of Short-Term Performance Obsession*, 61 FINANCIAL ANALYSTS JOURNAL 65 (2005); James Perry and Andreas Nölke, *The political economy of International Accounting Standards*, 13

support changes that promote the fulfillment of corporate net-zero commitments while increasing transparency for investors and the public. How to do that is theoretically simple: as the company makes a commitment as impactful as the one to drastically reduce its greenhouse gas emissions to net-zero, it must recognize the financial impacts of such a commitment and transparently spell them out.

Practically, the Net-Zero Ledger would adopt a two-pronged approach. At the basic level, regulators should scrutinize and ensure the proper financial reporting of climate risk for companies. Climate risk does not only entail exposure to physical risk, whether these are event-driven (e.g. heatwaves and floods) or chronic (such as drought or sea level rise). But it also means taking into account transition risks, i.e. the risks that arise from the transition to a sustainable economy. The latter does not suppose ascertaining a hypothetic achievement of the Paris Agreement's objective to mitigate climate change by 1.5ºC. Rather, it means to account for the probability of significant changes at global level in market and consumer preferences, investor demand as well as policy, regulatory, and litigation risks. Because climate change will generate socio-economic effects, the transition will necessarily affect companies and asset valuations whether it is successful or not, rapid or not, orderly or disorderly. Such risks should be recognized in financial reporting. Thus, financial reporting, from the determination of estimates and assumptions to the valuation of assets and liabilities, should reflect the company's exposure to climate risk. Current regulatory initiatives, such as those of the SEC or the ISSB at international level, focus on the financial materiality of climate risks. As such, they are well placed to support further scrutiny of climate risk in financial reporting.

The second prong of the Net-Zero Ledger's approach is directly aimed at the financial reporting of companies that have committed to net-zero. Here, the same principle of alignment between climate disclosure and financial disclosure applies with respect to net-zero. Consider a company with a corporate net-zero commitment (Company A) that is otherwise identical to a company (Company B) with no corporate net-zero commitment. The Net Zero Ledger entails that Company A would not share the same financials as Company B. This difference in financials should persist even if both companies are identical by industry, business model, and structure. For instance, Company A should be proactively seeking to reduce its GHG emissions and therefore will be phasing out its GHG-intensive assets and activities. This may lead to downgrading the useful life of these assets, thus increasing depreciation or value impairments or adding new liabilities. Company A might also be making significant investments in retrofitting assets—particularly its plants, properties, and equipment (PP&E)—or in new assets and processes of production. It may also be undertaking research and development (R&D) of low-carbon and GHG-neutral technologies and value-creation processes. The Net Zero Ledger argues that both companies— even if they are identical by size, structure, profits, and industry— should have different balance sheets and thus different financial outlooks. In other words, the Net-Zero Ledger would require full transparency of the consistency of a business's assets and liabilities with its net-zero commitment, including estimates and assumptions; asset

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REVIEW OF INTERNATIONAL POLITICAL ECONOMY, 559 (2006); *Short-Termism in European Corporate Governance: Conference Summary*, UNIVERSITY OF ANTWERP, ECGI & HARVARD LAW SCHOOL (2023). See also, ESMA, *Report: Undue short-term pressure on corporations*, ESMA30-22-762 (Dec. 18, 2019).

valuations and impairments (such as PP&E); useful lives of assets; liabilities that arise from the transition to net-zero; and fair value measurement.

The Net-Zero Ledger is particularly relevant for GHG-intensive sectors where the long-term valuation of assets and liabilities are highly dependent on the extent of their exposure to both climate-related physical and transition risk and whether companies transition to net-zero. On its face, the proposal looks like a bad deal for Company A, which has to devalue GHG-intensive or GHG-reliant assets on its balance sheet. However, with the two-pronged approach, Company B's balance sheet would also reflect its assets' and liabilities' exposure to climate risk, except Company B's balance sheet would not have the investments – and *in fine* the assets – pursued by Company A, and so should have a bleaker valuation and financial outlook when its financials are scrutinized by investors. It is indeed logic that if the consistency between financial reporting and climate pledges is probed, it follows the general alignment of financial disclosure with climate-related disclosure.

The Net-Zero Ledger is not a one-size-fits-all proposal but represents a range of policy options actionable by governments and regulators depending on their inclination to support the transition to net-zero for the former and their mandate for the latter. In the United States, it is likely that the Net-Zero Ledger would take a rather mild form. Still, the SEC has indeed longstanding authority under Section 13 of the Securities and Exchange Act of 1934 to set reporting and accounting standards to be followed by public companies but also the power to enforce them.[251] The SEC has exercised this authority concerning financial statements by issuing Regulation S-X. In line with the SEC's statutory authority, companies would have to show and detail under the Net-Zero Ledger how their exposure to climate risks and their climate commitments are reflected in their financial statements. This can be done in the form of a note to the financial statements.

At a general level, the note would include explanations of how the corporate net-zero commitment is incorporated in the financial strategy of the company and whether it affects its business model. It should specify how the commitment is reflected in significant accounting policies and critical accounting estimates and more generally the accounting judgments made. Furthermore, companies would have to disaggregate and explain the impact on each of the main items of their financial statements, thus shedding light on the extent to which their commitment affects asset valuation and impairments, or the changes it incurs in the useful life of assets. Capital expenditure supporting the net-zero commitment would also be detailed. Such changes are possible within the SEC's regulatory authority and without amending the GAAP. The GAAP regard financial accounting properly speaking and are issued by FASB – a private standard-setter –, which make it difficult to amend.[252] By contrast, the SEC has longstanding rulemaking authority to require financial disclosures which it can do for the proper protection of investors and to support capital

[251] 15 U.S. Code § 78m(b)(1).
[252] On amending the GAAP to take account of climate risks, see Tyler Winterich, *Accounting for Climate Risk*, 41 REV. BANKING & FIN. L. 758 (2022).

formation, and the general interest.[253] Investors could indeed be misled by growing noise on firms' climate commitments that are not followed through financially. In the end, the company would remain responsible for reporting its financials while being subjected to a range of obligations to detail how its commitment is being carried out.

Alternatively, companies would have to show on a line-by-line basis how their financial statements compare with normative net-zero transition scenario(s). This could be done, for instance by using a shadow carbon price,[254] which could be based on the estimate of the social cost of GHG emissions for determining the value of assets.[255] When used in conjunction with emissions reporting, such estimations can prove useful to investors to quantify monetarily the societal cost for which a company's GHG emissions are responsible as well as the inward-facing costs to the company brought on by not pursuing a net-zero transition. It may also prompt companies to implement their commitment and take measures to prevent their GHG-intensive assets from becoming stranded.

More radically, accounting standards could be universally revised or uniformly supervised to set assumptions and corporate accounting principles that properly account for the transition to net-zero. This could be done by amending the determination of what fair value represents or broaden the scope of valued intangibles. That may be the most adapted option for the European Union after the obligation of companies to have net-zero transition plans enters into force. The existence of other climate-related disclosure frameworks, such as (green and brown) Taxonomies, which act as legal catalogs or dictionaries of sustainable investments, could facilitate the application of the Net-Zero Ledger by authoritatively identifying which investments support the transition to net-zero.

The inspiration for the Net-Zero Ledger derives from the TCFD, the original ambition of which was to provide for climate-related *financial* disclosures, rather than boost the development of hard-to-compare non-financial disclosure. It recognizes in this

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[253] See George S. Georgiev, *The Market-Essential Role of Corporate Climate Disclosure*, 56 UC DAVIS L. REV. 2105 (2023); Ann M. Lipton, *Not Everything Is about Investors: The Case for Mandatory Stakeholder Disclosure*, 37 YALE J. REG. 499 (2020).

[254] Internal carbon prices have been used by numerous companies for purposes such as identifying transition risks, quantifying potential costs and guiding investment decisions, see CDP, *Putting a Price on Carbon* (2021), https://cdn.cdp.net/cdp-production/cms/reports/documents/000/005/651/original/CDP_Global_Carbon_Price_report_2021.pdf?1618938446. The use of internal carbon prices has prompted the SEC to require their disclosure, see 17 CFR 229.1502(g).

[255] The Social Cost of Carbon is a monetarized estimate of the cost of the damage resulting from the release of each additional ton of carbon dioxide into the atmosphere. Based on the proposal of William Nordhaus to set a price on carbon, the Social Cost of Carbon has been developed by the U.S. Government primarily for the purpose of cost-benefit analysis. While it has been varying from an administration to another, the Environmental Protection Agency issued in 2023 its own estimates with $190/metric ton of carbon dioxide at a 2% discount rate, even though the Social Cost of Carbon used by the federal government remains so far set at $51 under Executive Order 13990, 86 FR 7037. Recent scientific estimates, including those of the IPCC, are much higher, even though the measure is criticized. See EPA, *EPA Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances* (Nov. 2023), https://www.epa.gov/system/files/documents/2023-12/epa_scghg_2023_report_final.pdf; OMB, CIRCULAR NO. A-4 (Nov. 9, 2023); Kevin Rennert et al., *Comprehensive evidence implies a higher social cost of CO_2*, 610 NATURE 687 (2022). See also Steve Keen, *The appallingly bad neoclassical economics of climate change,* 18 GLOBALIZATIONS 1149 (2020); Madison Condon, *Damage Functions (Or Why I Am Mad at Economists)*, LPE BLOG (June 13, 2023), https://lpeproject.org/blog/damage-functions-economics-climate-science/.

perspective the importance not of market discipline but of regulatory scrutiny to ensure alignment between financial disclosure and climate disclosure and prevent greenwashing and deception. The Net-Zero Ledger is a regulatory proposal; it insists on the need for proper disclosure requirements and adequate supervision of financial reporting. Still, the Net-Zero Ledger can build on proposals and models developed by accountants to incorporate changes induced by the transition to net-zero, such as the Paris-Aligned Accounts, or the Climate Disclosure Standards Board's guidance on integrating climate-related matters into the financial statements.[256] These initiatives are directed to companies to help them incorporate climate risks and commitments in their financial accounting and reporting. The idea is generally consistent with the concept of integrated reporting, which advocates for the integration of financial and sustainability reporting.[257] It has long been advocated by non-profits such as the Sustainability Accounting Standards Board (SASB) and the International Integrated Reporting Council (IIRC); both initiatives having now been consolidated within the ISSB.[258] Nonetheless, the ISSB still failed to provide for a genuine integrated reporting framework as advocated by the Net-Zero Ledger.[259]

The Net-Zero Ledger does not presuppose a radical overhaul of financial accounting methods or structure. While financial accounting could be amended to better reflect new needs arising from climate risks and the transition to net-zero, its basic rules can already be used and harnessed for the Net-Zero Ledger, especially if the latter merely provides additional transparency on the basis of financial materiality of the net-zero transition. It would rest on existing financial reporting rules, from temporal coverage to scope coverage, structure and presentation. While requiring specific disclosures, the Net-Zero Ledger would rely on the existing principles-based and judgment-based approach to financial reporting. This proposal should also support accountants in better *recognizing* the critical financial changes entailed by corporate net-zero commitments. By contrast, some economists have gone further by proposing more fundamental overhauls of financial accounting, notably by quantifying and integrating the financial externalities of businesses in their accounts through impact-weighted accounting, beyond the sole issue of climate impacts.[260] Such suggestions follow the logic of double materiality, according to which the impact of businesses on the environment and society should be disclosed. These new accounting frameworks would therefore put a price on a wide range of both negative and positive externalities, from resource depletion to ecosystem restoration, and provide

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[256] See e.g. Climate Disclosure Standards Board, ACCOUNTING FOR CLIMATE (Dec. 2020); Accounting for Sustainability, *Essential Guide to Valuations and Climate Change* (Feb. 25, 2021), https://www.accountingforsustainability.org/valuations.html; Institute of Chartered Accountants in England and Wales (ICAEW), *Paris-aligned accounts*, https://www.icaew.com/technical/sustainability/paris-aligned-accounts (last visited Aug. 4, 2024).

[257] See Robert G. Eccles & Michael Krzus, ONE REPORT: INTEGRATED REPORTING FOR A SUSTAINABLE STRATEGY (2010).

[258] *IFRS Foundation completes consolidation with Value Reporting Foundation*, IFRS FOUNDATION (Aug. 1, 2022), https://www.ifrs.org/news-and-events/news/2022/08/ifrs-foundation-completes-consolidation-with-value-reporting-foundation/.

[259] See Nathan de Arriba-Sellier, *The ISSB's new standards: breaking ground or low hanging fruits?*, ECGI BLOG (July 13, 2023), https://www.ecgi.global/publications/blog/the-issbs-new-standards-breaking-ground-or-low-hanging-fruits.

[260] George Serafeim, T. Robert Zochowski, and Jennifer Downing, *Impact-Weighted Financial Accounts: The Missing Piece for an Impact Economy*, HARVARD BUSINESS SCHOOL WHITE PAPER (Sept. 2019); Dirk Schoenmaker and Willem Schramade, CORPORATE FINANCE FOR LONG-TERM VALUE (Springer, 2023); CERCES, *Comprehensive Accounting in Respect of Ecology*, https://www.cerces.org/projet-modele-care (last visited Aug. 4, 2024).

integrated-value frameworks. The Net-Zero Ledger is far more modest, even though it would be supported by such initiatives, were they legally introduced.

While the Net-Zero Ledger would close the loophole created by the misalignment between financial reporting requirements and new mandatory sustainability disclosure regimes, it also addresses some of the limits exhibited by the latter. The-Zero Ledger would ensure a wealth of quantitative information that can be more easily processed and analyzed by investors than qualitative disclosure to determine the transition strategy of a company, its ambition, and progress. If a company is transparent on the estimated useful life of its main assets or on the capital expenditures that support its corporate net-zero commitment, such disclosures represent forward-looking information that is useful to investors, regulators, and the public at large. And, unlike qualitative disclosure, quantitative financial disclosures are subject to audits and give investors information that is comparable, consistent, and reliable. This information can be compared to that of other companies, so as to facilitate investment decisions.

Importantly, the provision of financial disclosures relies on a well-established and trustworthy system of supervision. Financial disclosures are produced by accountants, managed by CFOs and fall within the scope of required internal control over financial reporting (ICFR) required under the Sarbanes-Oxley Act of 2002.[261] As part of the financial statements, the Net-Zero Ledger would be subject to audit by an independent registered public accounting firm and included in the scope of any required audit of the financial statements within such filings.[262] The Net-Zero Ledger would therefore make sure that the climate transition is better scrutinized by auditors, who could raise issues through Critical Audit Matters (CAM).[263] The liability regime applicable to financial reporting would thus similarly apply to the provision of financial disclosures related to net-zero, even though one may expect that the safe-harbor clause for forward-looking disclosures affects the Net-Zero Ledger in some of its aspects. Financial reporting is further supervised and enforced by government agencies, but the upstream supervisory system of accountants and auditors ensures consistent and reliable disclosures while preventing the overburdening of regulators.

B. The current net-zero regulatory scrutuiny: A basis for the Net-Zero Ledger

The Net-Zero Ledger would represent a momentous change in the supervision of corporate disclosure by making a critical turn from the supervision of sustainability reporting to financial reporting. Still, the Net-Zero Ledger is not per se a radical proposition,

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[261] 15 U.S.C. 7241, 7262.

[262] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 87 Fed. Reg. 21373 (proposed Apr. 11, 2022). See also Madison Condon, *Market Myopia's Climate Bubble*, 2022 UTAH L. REV. 63, 119 (2021).

[263] J. Robert Brown, Jr., *Revealing ESG in Critical Audit Matters*, HARVARD LAW SCHOOL FORUM ON CORPORATE GOVERNANCE (Nov. 19, 2020), https://corpgov.law.harvard.edu/2020/11/19/revealing-esg-in-critical-audit-matters/; Robert G. Eccles, *A Critical Audit Matter: It's Time For Auditors To Come Clean On Climate Change*, FORBES (Mar. 10, 2021), https://www.forbes.com/sites/bobeccles/2021/03/10/a-critical-audit-matter-its-time-for-auditors-to-come-clean-on-climate-change/.

as it largely builds on the new climate reporting regimes as well as on recent initiatives of regulators in the supervision of financial disclosures.

Regulators have started moving toward requiring more consistency between corporate net-zero commitments and financial reporting, providing a firmer ground for the establishment of the Net-Zero Ledger as a regulatory requirement. This is particularly the case in the United States, under the SEC rules. The final rules will require specifications in the financial statements to back up climate disclosure. Where companies have committed to net-zero or other climate objectives, they will be expected to disclose whether and how their financial estimates and assumptions are materially impacted by their climate targets or transition plans.[264] Where that is the case, "qualitative and quantitative disclosure" should be provided.[265] This obligation originates from the rule proposal of the SEC, which gave the example of a company with a target of net-zero GHG emissions by 2040 which would require decommissioning an emitting asset by that date; in this case, its depreciation expense should reflect alignment with that commitment.[266] Similarly, under the SEC rules, companies should give "quantitative and qualitative disclosure of material expenditures incurred [...] as a direct result of the transition plan."[267] The same requirements apply to climate targets.[268] In other words, it could become much clearer if a company aligns its financial judgment with its net-zero ambition, and undertakes the required investments. As a result, the SEC would shed light on the meaningfulness of corporate net-zero commitments, enabling investors and the public to assess whether a company walks the talk.

The initial rule proposal of the SEC went even further. It proposed the disclosure of several climate-related financial metrics, most dramatically the disclosure of so-called "financial impact metrics." These covered climate-related financial impacts of both physical and transition risks and opportunities on the line items of the financial statements once they exceed a threshold of 1% in absolute value.[269] The proposal gave several examples illustrative of the granularity of the proposed requirements, such as changes to revenue or cost due to new carbon pricing or regulation resulting in the loss of a sales contract; changes to cash flows from changes in upstream costs including the transport costs of raw materials; changes to the value of assets like intangibles or property & equipment due to reduction in their useful life or salvage value from exposure to transition activities; and changes to interest expense driven by financing instruments like climate-linked bonds with variable interest rates related to emissions targets.[270] Similarly, the rule proposal would have created expenditure metrics. Under such metrics, companies would have disclosed

[264] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21913 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 210.14-02(h)).
[265] Id. 21913, 21915-21916 (to be codified at 17 C.F.R. §§ 210.14-02(h), 229.1502(e)(2) and 229.1504(c)(2)).
[266] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 87 Fed. Reg. 21371-21372 (proposed Apr. 11, 2022).
[267] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 89 Fed. Reg. 21915-21916 (Mar. 28, 2024) (to be codified at 17 C.F.R. § 229.1502(e)).
[268] Id. at 21916 (to be codified at 17 C.F.R. § 229.1504(c)(2)).
[269] The Enhancement and Standardization of Climate-Related Disclosures for Investors, 87 Fed. Reg. 21366, 21464-21465 (proposed Apr. 11, 2022).
[270] Id. at 21465.

expenditures and capitalized costs from climate-related events and transition activities.[271] For both financial impact metrics and expenditure metrics, the proposal expected a discussion of contextual information and methodological underpinnings.[272] Furthermore, the initial proposal of the SEC contemplated the disclosure of both financial risks and financial opportunities, including those that would arise from the transition to net-zero. Even though these suggestions were withdrawn from the final rules, they represent tangible avenues for closing the loophole between climate disclosure and financial disclosure and designing the Net-Zero Ledger.

While the SEC rules remain to this day one of the most ambitious regulatory initiatives on climate-related financial transparency, it is not alone in tackling this issue. The European Union's CSRD requires financial disclosures related to transition plans. Like the SEC, it demands from in-scope companies an "explanation and quantification of the [company's] investments and funding supporting the implementation of its transition plan."[273] In the details, the CSRD requires transparency from companies both on investments (capital expenditure) that support the implementation of the transition plan, as well as those in "coal, oil and gas-related economic activities" that would undermine the transition to net-zero.[274] For transition-aligned investments, the CSRD particularly leverages the EU Taxonomy, a legal catalogue of economic activities and investment that are considered to be "environmentally sustainable".[275] In addition, under the CSRD businesses have the obligation to disclose "how the transition plan is embedded in and aligned with the undertaking's overall business strategy and financial planning."[276] Beyond the sole issue of climate targets and transition plans, the CSRD compels businesses to disclose the anticipated effects from material climate risks, including transition risks and the related liabilities that may arise over the short, medium, and long term.[277]

While both the SEC rules and the CSRD open avenues for the introduction of the Net-Zero Ledger, it is remarkable that this is not the case of the ISSB's standards at international level. The ISSB indeed does not provide similar specifications related to climate targets or transition plans, despite bearing the inheritance of the TCFD. Still, the ISSB's climate standard lays out a series of general expectations regarding the financial effects of climate-related risks and opportunities, notably on the business model and strategy of companies.[278] Likewise, businesses should disclose the financial effects of climate-related risks and opportunities on their financial position, financial performance and cash flows, including "anticipated effects" over the short, medium and long term.[279] The ISSB particularly demands disclosure on the businesses' investment and disposal plans (from capital expenditure and divestment to business transformation) as well as resource

[271] Id. at 21464-21465; see also the SEC's discussion at 21369-2173.
[272] Id. at 21464.
[273] Commission Delegated Regulation (EU) 2023/2772, at 75.
[274] Id.
[275] Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088
[276] Commission Delegated Regulation (EU) 2023/2772, at 76.
[277] Id. at 83-85.
[278] IFRS Foundation, IFRS S2 CLIMATE-RELATED DISCLOSURES, §§ 9, 13 and 14.
[279] Id. §§ 9(d) and 15.

allocation and the funding to support its strategy.[280] Although these requirements are not specific for climate targets and transition plans, they could further financial consistency regardless of the corporate ambition, thus supporting a level playing field and providing a solid ground for the Net-Zero Ledger. Nonetheless, the lack of specification of the ISSB's standards as well as the absence of an auditing requirement could undermine this attempt at providing consistency as it leaves room for regulatory arbitrage if implementation falls short of providing clear rules.[281]

Besides disclosure requirements set under the SEC's rules and the CSRD, it is important to note that the context is favorable to the development of a Net-Zero Ledger and, more broadly, the regulatory refocus on financial reporting. Indeed, the International Accounting Standards Board is increasingly providing guidance on financial accounting related to climate change and is openly contemplating further work, specifically on the question of net-zero impairments and liabilities.[282] By contrast, the issue has been mostly omitted by U.S. standard-setting organizations such as the Public Company Accounting Oversight Board (PCAOB), even though the Financial Accounting Standards Board (FASB) issued in 2021 an educational paper exploring potential effects of environmental matters with financial accounting standards.[283]

Regulators have been more proactive in supervising financial reporting too. In 2021, the same year than the FASB paper was issued, the SEC created a task force to identify potential violations or misstatements in the disclosure of climate risks.[284] Since then, the SEC has been actively flagging issues in financial disclosures in the course of its regular reviews of corporate filings.[285] It has issued comment letters asking for explanations and details from companies, including Honda Motor Co. Ltd. and Amazon, on their climate risk exposures and expenses.[286] Some companies that omitted this issue altogether started including climate risk disclosures as part of their 10-Ks.[287] The SEC has further flagged inconsistencies between sustainability reports and annual reports of companies like Estée

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[280] Id. §§ 14 and 16.

[281] Nathan de Arriba-Sellier, *The ISSB's new standards: breaking ground or low hanging fruits?*, ECGI BLOG (July 13, 2023), https://www.ecgi.global/publications/blog/the-issbs-new-standards-breaking-ground-or-low-hanging-fruits.

[282] Andreas Barckow, *Connectivity in practice: the IASB's new project on Climate-related Risks in the Financial Statements*, THE IFRS FOUNDATION (Mar. 23, 2023), https://www.ifrs.org/news-and-events/news/2023/03/connectivity-in-practice-the-iasbs-new-project-on-climate-related-risks-in-the-financial-statements/; IFRS, EFFECTS OF CLIMATE-RELATED MATTERS ON FINANCIAL STATEMENTS (Republished July 2023).

[283] FASB, FASB STAFF EDUCATIONAL PAPER: INTERSECTION OF ENVIRONMENTAL, SOCIAL, AND GOVERNANCE MATTERS WITH FINANCIAL ACCOUNTING STANDARDS (MAR. 19, 2021).

[284] SEC, *SEC Announces Enforcement Task Force Focused on Climate and ESG Issues* (Mar. 4, 2021), https://www.sec.gov/news/press-release/2021-42.

[285] Ben Bain, *SEC Finds Gaps in Climate Change Disclosures in Annual Reports*, BLOOMBERG TAX (Sept. 22, 2021), https://news.bloombergtax.com/financial-accounting/sec-finds-gaps-in-climate-change-disclosures-in-annual-reports.

[286] Avery Ellfeldt, *SEC gets aggressive in demanding climate data*, POLITICO PRO (Dec. 5, 2022), https://subscriber.politicopro.com/article/eenews/2022/05/12/sec-gets-aggressive-in-demanding-climate-data-00031955.

[287] Patrick Temple-West, *Climate risks gain corporate acknowledgment after SEC prodding*, FIN. TIMES (Dec. 30, 2022), https://www.ft.com/content/41e3b01e-34cd-42ba-a120-e036837e3a7c.

Lauder Companies Inc. or Eli Lilly & Co.[288] Such actions underline the importance of scrutinizing financial disclosures and ensuring their consistency with non-financial disclosures. They also prove the broad margin of maneuver of the SEC in this respect, regardless of the fate of its climate disclosure rules, which have been stayed by the regulator while legal challenges are proceeding.[289]

The European Securities and Markets Authority (ESMA) has also been considering the effects of climate risks on financial reporting as one of the European common enforcement priorities for financial reports.[290] It has been doing so with a view to inconsistencies related to corporate net-zero commitments. The authority thus highlighted in a recent report the issue of "anticipated costs and capital expenditures to meet the issuer's or local commitments to achieve net zero emissions".[291] Consistency between financial estimates and assumptions and corporate net-zero commitments has thus been underlined as an area of scrutiny for 2023 annual reports.[292] The UK Financial Reporting Council similarly conducted a review of the material impact of net-zero targets and transition plans on financial statements.[293] The areas of concern stressed by these regulators confirm the need for refocusing the regulatory scrutiny to financial reporting in order to close the loophole with climate reporting and ensuring consistency as the Net-Zero Ledger would do.

Conclusion

The momentum of corporate net-zero commitments has precipitated the emergence of regulation as private attempts to discipline firms and heighten climate ambition could not ensure comparable, consistent, and reliable disclosures that support investors' decision-making.

New regulation, including the SEC's climate disclosure rules, contribute to enhancing transparency thanks to a wide range of disclosure requirements. In this respect, the alignment between the SEC rules and international regulations is particularly remarkable. Yet, these regulatory initiatives fall short of ensuring investor protection as they create a glaring loophole between non-financial disclosures and financial disclosures.

The Net-Zero Ledger proposed in this Article addresses the limits of the new regulations by requiring that companies align their financial reporting with their net-zero commitments. It would provide more reliable and comparable information to investors and

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[288] Nicola M. White, *SEC Presses Companies on Climate Risk With New Rules on Horizon*, BLOOMBERG TAX (Jan. 2, 2024), https://news.bloombergtax.com/financial-accounting/sec-presses-companies-on-climate-risk-with-new-rules-on-horizon.

[289] The Enhancement and Standardization of Climate-Related Disclosures for Investors; Delay of Effective Date, 89 Fed. Reg. 25804 (Apr. 12, 2024).

[290] ESMA, EUROPEAN COMMON ENFORCEMENT PRIORITIES FOR 2022 ANNUAL FINANCIAL REPORTS (Oct. 28, 2022) ESMA32-63-1320; ESMA, EUROPEAN COMMON ENFORCEMENT PRIORITIES FOR 2023 ANNUAL FINANCIAL REPORTS (Oct. 25, 2023), ESMA32-193237008-1793.

[291] ESMA, EUROPEAN COMMON ENFORCEMENT PRIORITIES FOR 2022 ANNUAL FINANCIAL REPORTS (Oct. 28, 2022) ESMA32-63-1320.

[292] ESMA, EUROPEAN COMMON ENFORCEMENT PRIORITIES FOR 2023 ANNUAL FINANCIAL REPORTS (Oct. 25, 2023) ESMA32-193237008-1793, at 4.

[293] Financial Reporting Council, CRR THEMATIC REVIEW OF CLIMATE-RELATED METRICS AND TARGETS (July 26, 2023).

the public about the meaningfulness of such commitments that are crucial for climate change mitigation and the transition to a sustainable economy. In the end, it seeks to concretize the proposition of Emmanuel Faber, the chair of the ISSB, which suggested that its standard would represent: "Sustainability translated into an accounting language, a new common language to build more resilient economics."[294]

[294] Emanuel Faber, Chair, I.S.S.B., Speech at the IFRS Foundation Conference: *A new common language to build more resilient economics* (June 29, 2023), https://www.ifrs.org/news-and-events/news/2023/06/a-new-common-language-to-build-more-resilient-economics/.

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