

A STRATEGIC APPROACH TO “E”SG REPORTING[†]

by
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Environmental, Social, and Governance (ESG) factors have emerged as an important investment tool for the financial sector to address climate change. While the federal government has abandoned ESG disclosure, U.S. firms still face reporting obligations domestically and abroad. States across the country have proposed or passed two types of disclosure laws: greenhouse gas emissions disclosure and climate risk disclosure. These state-level efforts mirror actions in the European Union, Canada, and other jurisdictions in which U.S. firms operate.

As ESG disclosure standards are adopted in jurisdictions around the world, these standards are undergoing various advancements, reductions, and contestations. These shifts in ESG reporting standards provide an opportunity to evaluate existing gaps in reporting.

This Essay proposes that one glaring gap persists: disclosure laws do not require disclosure of whether, and to what extent, a firm uses “strategic instruments”—tools like power purchase agreements and supply chain contracts—to manage climate mitigation and adaptation. These strategic instruments provide a better picture of how firms commit to improved climate risk management than the status quo. Yet with much of the policy debate and legal scholarship focused on the efficacy, scope, and equity of emissions metrics, this reporting gap remains underdiscussed.

This Essay fills that gap. It outlines current disclosure standards and California’s greenhouse gas emissions and climate risk disclosure laws. It expounds the importance of strategic instruments in climate mitigation and adaptation to investors, managers, and regulators. To understand the relevance of strategic instruments in corporate ESG reports, this Essay evaluates the Task Force on Climate-Related Disclosure (TCFD)-aligned reports of over

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100 corporations subject to California's disclosure laws. It highlights that strategic instruments, and metrics to measure their use, remain underreported in climate mitigation and adaptation disclosure.

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INTRODUCTION

The past two years have seen a flurry of activity around environmental, social, and governance (ESG) factors used in investment decision-making. As global leaders recognize the imperative to slow climate change and address the impacts of impending climatic disasters, environmental factors have become a major focus of disclosure. Such disclosure falls into two major buckets: reporting greenhouse gas emissions and reporting climate risks.¹ Countries all over the world, including the United States, Canada, Australia, Singapore, and India, as well as the European Union (EU), have passed climate-related disclosure mandates.² Standards organizations continue to harmonize and develop reporting standards. For example, the International Sustainability Standards Board has subsumed the work of the Task Force on Climate-related Financial Disclosures (TCFD), which developed standards for climate risk disclosure.³ The IFRS Foundation has also announced an official partnership with the Greenhouse Gas Protocol to harmonize the International Sustainability Standards Board's (ISSB) climate risk disclosure standards with the Protocol's greenhouse gas emissions standards.⁴

¹ CATHERINE OSBORN & JUSTIN NELSON, ERM SUSTAINABILITY INST., THE NEW DISCLOSURE LANDSCAPE: COMPARING SUSTAINABILITY STANDARDS AND REGULATIONS 18–19 (2024), https://www.sustainability.com/globalassets/sustainability.com/reports/comparison_table_update_v4_pluse.pdf [<https://perma.cc/U4F2-YUGQ>].

² AISTE BRACKLEY, RAMESH NARASIMHAN & JUSTIN NELSON, ERM SUSTAINABILITY INST., THE GLOBAL REGULATIONS RADAR 6, 9 (2024), https://www.sustainability.com/globalassets/insights/documents/ermis-regulations-matrix-0724_v8.pdf [<https://perma.cc/9GZW-D422>].

³ ISSB and TCFD, IFRS, <https://www.ifrs.org/sustainability/tcfdf/> [<https://perma.cc/TV2T-NVWF>] (last visited May 6, 2026).

⁴ Ashley Junger, Press Release, Greenhouse Gas Protocol, RELEASE: GHG Protocol

Yet, there has been recent curtailment in some jurisdictions. The U.S. Securities and Exchange Commission (SEC) declined to defend its mandates for disclosure of climate risk and greenhouse gas emissions and has recently proposed a rescission of that disclosure rule.⁵ It also withdrew its guidance for companies to report environmental lawsuits by foreign governments.⁶ Similarly, the Environmental Protection Agency has sought to eliminate reporting requirements under its Greenhouse Gas Reporting Protocol for all industrial systems except petroleum and natural gas.⁷ In another retreat, the EU reduced the number of firms covered by its sustainability disclosure law by 80%.⁸ And the U.S. Ambassador to the EU has vowed to fight ESG initiatives in Europe.⁹ These changes are fueled by a fear of fossil fuel “boycotts” in the United States¹⁰ and business competitiveness in the EU.¹¹ Even the ISSB, whose disclosure standards many jurisdictions have adopted, is considering reducing some greenhouse gas emissions reporting in response to industry concerns.¹²

The adoption of disclosure standards has faced headwinds most saliently in the United States. California’s SB 253 and SB 261, which require greenhouse gas emissions disclosure and climate risk management disclosure, respectively, are the

Launches Official Partnership with IFRS Foundation (June 24, 2024), <https://ghgprotocol.org/blog/release-ghg-protocol-launches-official-partnership-ifrs-foundation> [<https://perma.cc/EZP2-PZXE>].

⁵ Press Release, U.S. Sec. & Exch. Comm’n, SEC Votes to End Defense of Climate Disclosure Rules (Mar. 27, 2025), <https://www.sec.gov/newsroom/press-releases/2025-58> [<https://perma.cc/S7AG-NSJM>]; Press Release, U.S. Sec. & Exch. Comm’n, SEC Proposes Rescission of Climate-Related Disclosure Rules (May 29, 2026), <https://www.sec.gov/newsroom/press-releases/2026-49-sec-proposes-rescission-climate-related-disclosure-rules> [<https://perma.cc/NN67-3J5L>].

⁶ Andrew Ramonas, *SEC Ends Push for Companies to Report Overseas Climate Lawsuits*, BLOOMBERG L. (June 23, 2025), https://www.bloomberglaw.com/bloomberglawnews/esg/X7E1FQ30000000?bna_news_filter=esg#jcite (on file with author).

⁷ See Reconsideration of the Greenhouse Gas Reporting Program, 90 Fed. Reg. 44591 (proposed Sep. 16, 2025) (to be codified at 40 C.F.R. pt. 98).

⁸ Press Release, Eur. Comm’n, Commission Simplifies Rules on Sustainability and EU Investments, Delivering over €6 Billion in Administrative Relief (Feb. 25, 2025), https://ec.europa.eu/commission/presscorner/detail/en/ip_25_614 [<https://perma.cc/WRT7-WMG8>].

⁹ *America’s New EU Ambassador Vows to Fight Red Tape for US Companies*, BLOOMBERG (Sep. 11, 2025), <https://www.bloomberg.com/news/articles/2025-09-11/new-us-ambassador-to-eu-takes-anti-esg-fight-to-europe> (on file with author).

¹⁰ Taylor Nchako & Lisa Benjamin, *ESG Backlash in the United States—Investor Concerns or “Red Scare”?*, 5 J.L. POL. ECON. 268, 270–71 (2025).

¹¹ Press Release, Eur. Comm’n, *supra* note 8.

¹² ISSB Publishes Exposure Draft Proposing Targeted Amendments to IFRS S2 to Ease Application for Companies, IFRS (Apr. 28, 2025), <https://www.ifrs.org/news-and-events/news/2025/04/issb-publishes-exposure-draft-targeted-amendments-s2/> [<https://perma.cc/D43D-5FD4>].

only disclosure laws left in the United States and yet they face ongoing litigation. The U.S. Chamber of Commerce has sued the California Air Resources Board (CARB) over its enforcement of California's disclosure laws, alleging that they violate the First Amendment, the Dormant Commerce Clause, and broader federalism principles.¹³ ExxonMobil has also sued CARB, alleging that the laws violate its First Amendment rights.¹⁴

These realignments, reassessments, and disputes provide an opportunity to interrogate ESG disclosure. This Essay canvasses current disclosure laws and proposals to update them. It identifies a category of practices that, though critical to effective disclosure, has since gone underreported—what this Essay refers to as strategic instruments. It argues that disclosure standards should prioritize disclosure of strategic instruments and the metrics used to measure their implementation.

Part I discusses the shifts in climate disclosure occurring in standards-setting organizations, in the United States, and in the EU. Part II identifies strategic instruments as an important reporting category to fulfill disclosure's stated purposes. It argues that disclosure of strategic instruments improves the specificity, comparability, and utility of disclosure for investors, managers, and regulators. Using California's disclosure laws as a frame of reference, Part III analyzes TCFD-aligned disclosures by firms, provides a taxonomy of strategic instruments, and demonstrates that strategic instruments are underreported along three dimensions: the use of instruments, the extent of their use, and the metrics used to measure the extent of their use. Part IV offers a modest outline of principles for standardizing reporting on strategic instruments.

I. MAPPING THE MAJOR CLIMATE STANDARDS

As climate reporting has become more widespread, it has also begun to shift and, in some instances, shrink. As the only climate-focused disclosure regime in the United States, this Essay uses California's disclosure laws as a frame of reference. This Part describes how the major climate reporting standards covered by the laws have evolved in the past two years: the TCFD/ISSB and the EU's European Sustainability Reporting Standards.

A. TCFD/ISSB

The TCFD has four categories for disclosure: governance, strategy, risk management, and metrics/targets. Governance includes the oversight of risks and

¹³ Amended Complaint for Declaratory & Injunctive Relief at 18–25, *Chamber of Com. of the U.S. v. Cal. Air Res. Bd.*, No. 2:24-cv-00801 (C.D. Cal. Feb. 22, 2024).

¹⁴ Janie Har, *ExxonMobil Sues California Over Climate Disclosure Laws*, AP NEWS (Oct. 25, 2025, at 14:44 PST), <https://apnews.com/article/exxon-mobil-california-climate-d8a52052f881ed288864f27c28997300> [<https://perma.cc/EAV6-SW6X>].

opportunities and management’s role in assessing them.¹⁵ Strategy includes information on the impact that short-, medium-, and long-term risks and opportunities have on the business, its strategy, and its financial planning, as well as the resilience of the strategy under different climate change scenarios.¹⁶ Under risk management, firms disclose the processes for identifying, assessing, and managing climate risks and its integration into overall risk management.¹⁷ Finally, firms should disclose the metrics and targets used to assess and manage risks and opportunities as well as the firm’s performance against those targets.¹⁸

In 2023, the TCFD disbanded and the ISSB took over to monitor compliance with the TCFD standards and build on them.¹⁹ In general, IFRS S2 follows the same structure as TCFD and is specific to climate-related risks.²⁰ IFRS S1 follows a similar structure, but it focuses on sustainability (excluding climate) risks.²¹ The standards are designed to be reported together. As such, the ISSB provides information on a greater range of risks than the TCFD. Recently, the ISSB has simplified IFRS S2 to allow for greater flexibility and interoperability across standards for emissions reporting.²²

Both standards integrate the Greenhouse Gas (GHG) Protocol for companies to report their greenhouse gas emissions. The GHG Protocol takes a five-step approach to emissions reporting.²³ First, a firm must identify sources of emissions, including direct and indirect emissions. Direct emissions (scope 1) are activities like electricity generation, manufacturing, transportation, and leaks. Indirect emissions include electricity purchases (scope 2) and activities by contractors, consumers, and

¹⁵ TASK FORCE ON CLIMATE-RELATED FIN. DISCLOSURES, RECOMMENDATIONS OF THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES 14 (2017), <https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf> [<https://perma.cc/HA5B-3FXJ>].

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ IFRS FOUND., PROGRESS ON CORPORATE CLIMATE-RELATED DISCLOSURES—2024 REPORT 123–39 (2024), <https://www.ifrs.org/content/dam/ifrs/supporting-implementation/issb-standards/progress-climate-related-disclosures-2024.pdf> [<https://perma.cc/8W4V-HVVW>].

²⁰ IFRS S2 *Climate-related Disclosures*, IFRS, <https://www.ifrs.org/issued-standards/ifrs-sustainability-standards-navigator/ifrs-s2-climate-related-disclosures/> [<https://perma.cc/4M38-NQZ7>] (last visited May 6, 2026).

²¹ IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*, IFRS, <https://www.ifrs.org/issued-standards/ifrs-sustainability-standards-navigator/ifrs-s1-general-requirements/> [<https://perma.cc/SM59-EWTS>] (last visited May 6, 2026).

²² IFRS SUSTAINABILITY, TARGETED AMENDMENTS TO IFRS S2—AT A GLANCE (2025), <https://www.ifrs.org/content/dam/ifrs/supporting-implementation/ifrs-s2/s2-targeted-amendments-at-a-glance.pdf> [<https://perma.cc/BW8X-5RYN>].

²³ WORLD BUS. COUNCIL FOR SUSTAINABLE DEV. & WORLD RES. INST., THE GREENHOUSE GAS PROTOCOL 40 (2004), <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf> [<https://perma.cc/N5TP-B5QV>].

other parties in the value chain (scope 3).²⁴ Then, a firm determines its emissions measurement methodology. Next, a firm collects the data and applies a calculation methodology, developed by the GHG Protocol or another standard, to each emissions source. Finally, a firm compiles the data to provide emissions reporting at the corporate level.²⁵

The GHG Protocol has seen major developments in the past two years. It has announced a partnership with the International Standards Organization to co-develop a product carbon footprint standard.²⁶ The Protocol has also announced a new standard to help companies quantify the emissions and carbon removal from their land ownership, land control, and production of products on agricultural lands.²⁷

Perhaps most fundamentally, the GHG Protocol has begun a process to include “actions and market instruments” in its standard, which encourages firms to report on three types of actions. First, a firm may report its market instruments, such as power purchase agreements, and how those instruments change its reported emissions.²⁸ Second, a firm may report the emissions reduced, avoided, or removed as a result of certain projects, products sold, market instruments, or other actions that would not otherwise be counted in its emissions inventory.²⁹ Third, a firm may report its key performance indicators of decarbonization, such as the percentage of low-carbon products sold or procured; the percentage, monetary value, or wattage of renewable energy purchases; or the financial contribution to actions outside its value chain.³⁰

At the same time, the adoption of the TCFD/ISSB and the GHG Protocol face significant curtailment in the United States. California has taken the helm to implement climate reporting after the SEC withdrew its climate disclosure rule. Yet the implementation of California’s greenhouse gas emissions disclosure law (SB 253) and its climate risk disclosure law (SB 261) has also been in flux due to recent litigation.

California’s SB 253 covers any firm which has annual revenue over \$1 billion and “does business” in the state.³¹ A firm must disclose its scope 1, 2, and 3

²⁴ *Id.* at 27–30.

²⁵ *Id.* at 40.

²⁶ Sarah Huckins, *ISO-GHG Protocol Partnership: Frequently Asked Questions*, GREENHOUSE GAS PROTOCOL (Sep. 23, 2025), <https://ghgprotocol.org/blog/iso-ghg-protocol-partnership-frequently-asked-questions> [<https://perma.cc/2XNN-DNAK>].

²⁷ Sarah Huckins, *Land Sector and Removals Standard: What You Need to Know*, GREENHOUSE GAS PROTOCOL (Jan. 30, 2026), <https://ghgprotocol.org/blog/land-sector-and-removals-standard-what-you-need-know> [<https://perma.cc/K8CH-6CGY>].

²⁸ GREENHOUSE GAS PROTOCOL, ACTIONS AND MARKET INSTRUMENTS 36 (2025), <https://ghgprotocol.org/sites/default/files/2025-12/AMI-Phase1-WhitePaperDraft-1SB%20Review-v2.1.pdf> [<https://perma.cc/S7VR-PRQ2>].

²⁹ *Id.* at 37.

³⁰ *Id.* at 39.

³¹ CAL. HEALTH & SAFETY CODE §§ 38532(b)(2)(West 2026).

greenhouse gas emissions, taking into consideration how acquisitions, divestments, and mergers affect its emissions.³² A firm must report its scope 1, 2, and 3 emissions according to the GHG Protocol or an equivalent standard.³³ The legislation also requires reporting to be comprehensible to non-investors, and a nonprofit emissions reporting organization must establish a digital platform for the public to view data aggregated by year and other metrics.³⁴

California’s SB 261 covers any firm, excluding insurance companies, with an annual revenue over \$500 million and which “does business” in the state.³⁵ Firms must report material risks to their immediate and long-term financial outcomes due to physical and climate-transition risks as well as the measures used to reduce and adapt to those risks.³⁶ Disclosures must follow standards issued by the TCFD or its equivalent, like those under the ISSB, other legislation, or a voluntary framework.³⁷ Firms must also make disclosures accessible to non-investor stakeholders by publishing the report on their website.³⁸ Moreover, a climate-reporting organization must prepare a public report that distills data on a sector, industry, and systemic level.³⁹

In 2024, the U.S. Chamber of Commerce sued the laws’ implementing body, the CARB, challenging the constitutionality of the laws under the First Amendment.⁴⁰ In its analysis of SB 253, the district court found that SB 253 was not reasonably related to California’s stated interest in consumer information, reducing misleading speech, or, with respect to firms without California investors, its interest in investor protection.⁴¹ The court found that SB 253 was constitutional insofar as it sought to reduce greenhouse gas emissions and provide information to

³² *Id.* § 38532(c)(2)(E).

³³ *Id.* § 38532(c)(2)(A).

³⁴ *Id.* §§ 38532(c)(2)(B), 38532(e).

³⁵ *Id.* § 38533(a)(4).

³⁶ *Id.* §§ 38533(a)(2), 38533(b)(1)(A)(ii).

³⁷ *Id.* §§ 38533(b)(1)(A), (b)(3).

³⁸ *Id.* § 38533(c)(1).

³⁹ *Id.* § 38533(d).

⁴⁰ Amended Complaint for Declaratory & Injunctive Relief, *supra* note 13, at 18–22.

⁴¹ Order Denying Plaintiffs’ Motion for Preliminary Injunction at 27–31, 34–37, *Chamber of Com. of the U.S. v. Cal. Air Res. Bd.*, No. 2:24-cv-00801 (C.D. Cal. Aug. 13, 2025). In defense of the laws, CARB outlined three purposes for them. First, California seeks to protect its “investors, consumers, and other stakeholders from fraud or misrepresentation.” Second, California seeks to ensure investors and consumers can “make informed judgments about the impact of climate-related risks on their economic choices.” Third, California hopes to encourage companies to “reduce their emissions and thereby mitigate the risks California and its residents face from climate change.” Response to Plaintiffs’ Motion for Preliminary Injunction at 16–18, *Chamber of Com. of the U.S. v. Cal. Air Res. Bd.*, No. 2:24-cv-00801 (C.D. Cal. Apr. 7, 2025).

investors, as applied to companies with California investors.⁴² Similarly, the court found that SB 261 had the same unconstitutional applications as SB 253 and, additionally, that SB 261 did not advance the state's interest in reducing greenhouse gas emissions.⁴³ Thus, the only constitutional application of SB 261 was based on the state's interest in protecting investors as applied to firms with California investors. The court thus denied the Chamber's motion for a preliminary injunction.⁴⁴

These battles seem poised to continue, as the Chamber has appealed the district court's denial of a preliminary injunction to the Ninth Circuit.⁴⁵ And ExxonMobil has launched an as-applied constitutional challenge to California's disclosure laws.⁴⁶ This litigation leaves open questions about the future of climate disclosure in the United States. However, U.S. firms must still consider disclosure obligations from other jurisdictions.

B. *The EU's ESRS*

Across the pond, the EU has adopted its European Sustainability Reporting Standards (ESRS). Under California's disclosure laws, the ESRS is a potential alternative reporting scheme that firms may use to satisfy the laws' mandates. In general, the ESRS requires firms to report environmental, social, and governance information, with the environmental disclosures separated into five categories: climate change; pollution; water; biodiversity and ecosystems; and resource use and circular economy.⁴⁷

Recent amendments have limited the scope of the ESRS and thus the Standard now covers any firm with over 1,000 employees and a net annual turnover above 450 million euros within the EU.⁴⁸ The EU has also requested recommendations

⁴² Order Denying Plaintiffs' Motion for Preliminary Injunction, *supra* note 41, at 32–33.

⁴³ *Id.* at 39.

⁴⁴ *Id.* at 41.

⁴⁵ Moreover, the district court's finding that SB 253 required disclosure of uncontroversial information may be inconsistent with the Supreme Court's recent characterization of controversiality. *See id.* at 24–25. In *National Institute of Family and Life Advocates v. Becerra*, the Court held that a law mandating speech on abortion services is “anything but an uncontroversial topic” even though it only required uncontested, indisputable information. 585 U.S. 755, 764 (2018). Similarly, in *Janus v. American Federation of State, County, and Municipal Employees*, the Court noted in dicta that climate change is a “controversial subject” which warrants “special protection” on the “highest rung of the hierarchy of First Amendment values.” 585 U.S. 924, 954 (2018). It is thus unclear whether the district court's conclusion will remain intact.

⁴⁶ Har, *supra* note 14.

⁴⁷ Press Release, Eur. Comm'n, Questions and Answers on the Adoption of European Sustainability Reporting Standards (July 30, 2023), https://ec.europa.eu/commission/presscorner/detail/en/qanda_23_4043 [<https://perma.cc/84RV-LUL5>].

⁴⁸ Press Release, Eur. Parliament, Simplified Sustainability Reporting and Due Diligence

from the European Financial Reporting Advisory Group (EFRAG) on ways to simplify the ESRS. In addition to simplifications, EFRAG has also introduced two clarifications for reporting climate practices. First, it specifies that, when a firm reports its progress on its transition plan for climate change *mitigation*, it should report *quantitative and qualitative components*, such as resources deployed, actions taken, and GHG reductions achieved.⁴⁹ It defines “actions” as acts and plans that a firm employs to ensure it progresses against its targets and to address impacts, risks, and opportunities.⁵⁰ Actions also include decisions to support acts with financial, human, or technological resources.⁵¹ Second, the recommendations specify that a firm should disclose its climate change *mitigation and adaptation* policies and actions.⁵²

Though the ESRS remains on much more stable footing than climate disclosure in the United States, it, like the TCFD, ISSB, and GHG Protocol, leaves open a persistent gap in existing corporate reports. The underreported information is what this Essay refers to as strategic instruments. The next Part explains what strategic instruments are and why they are important in climate reporting.

II. THE IMPORTANCE OF INSTRUMENTS IN CLIMATE REPORTING

Strategic instruments are tools which firms use to adjust their practices. They may be formal instruments, such as contractual arrangements, or informal instruments, such as internal policies.⁵³ This Essay refers to such tools as strategic

Rules for Businesses, (Dec. 16, 2025), <https://www.europarl.europa.eu/news/en/press-room/20251211IPR32164/simplified-sustainability-reporting-and-due-diligence-rules-for-businesses> [<https://perma.cc/25C4-LKL4>].

⁴⁹ EFRAG, ESRS E1 CLIMATE CHANGE 11 (2025), https://www.efrag.org/sites/default/files/media/document/2025-12/November_2025_ESRS_E1_markup.pdf [<https://perma.cc/79XV-QNAZ>].

⁵⁰ EFRAG, AGGREGATED ACRONYMS AND GLOSSARY OF TERMS 6 (2025), https://www.efrag.org/sites/default/files/media/document/2025-12/November_2025_ESRS_ANNEX_II.pdf [<https://perma.cc/XX5W-8577>].

⁵¹ *Id.*

⁵² EFRAG, *supra* note 49, at 13–14. The policies should include a description of their scope within the firm’s operations. EFRAG, ESRS 2 GENERAL DISCLOSURES 14 (2025) [hereinafter EFRAG, ESRS 2 GENERAL DISCLOSURES], https://www.efrag.org/sites/default/files/media/document/2025-12/November_2025_ESRS_2.pdf [<https://perma.cc/3M6U-XYZK>]. The actions should include a description of their scope in operations and, if significant financial resources are committed to them, the amount of resources committed. *Id.*

⁵³ These instruments may be a part of what Professor Michael Vandenbergh refers to as private environmental governance, in which firms self-regulate using a variety of business-to-business mechanisms. See Michael P. Vandenbergh, *Private Environmental Governance*, 99 CORN. L. REV. 129 (2013) [hereinafter *Private Environmental Governance*]. Professor Vandenbergh has proposed that firms disclose private environmental governance initiatives as risks they may face in the climate transition. Michael P. Vandenbergh, *Disclosure of Private Climate Transition Risks*,

instruments because disclosure standards require firms to report their strategies to mitigate and adapt to climate change. As this Part shows, these instruments are critical to reporting a firm's strategy because the stated purpose of the climate-disclosure regime is to change firm behavior, thereby influencing its strategy and by implication the instruments used to implement that strategy.

According to the preamble of SB 253, the bill aims to inform investors and consumers and to reduce California's exposure to climate impacts by encouraging companies to reduce emissions.⁵⁴ SB 261 aims to encourage companies to plan for and adapt to climate change to protect California's economy, and, by extension, its residents and investors.⁵⁵ The greenhouse gas emissions and climate risk disclosure laws thus share an objective to shift firms' mitigation and adaptation practices.

To mitigate climate change, firms must reduce greenhouse gas emissions. Starting with the most emissions-intensive practices, firms could reduce fossil fuel use, either by sourcing energy from renewable sources, investing in energy efficiency, or reducing transportation.⁵⁶ Firms could also change other greenhouse gas-intensive practices, like waste production and meat consumption.⁵⁷ Each avenue requires adjustments in not just the practices used, but the instruments used to achieve those changes as well.

Energy sourcing includes a variety of contract types, including power purchase agreements, renewable energy certificates, green utility tariffs, and onsite generation.⁵⁸ As large technology companies reconcile clean energy goals with high energy demands from artificial intelligence development, new energy agreements have emerged, such as Google's clean transition tariff in Nevada,⁵⁹ and behind-the-meter partnerships between tech companies and utilities.⁶⁰ Firms may enhance energy efficiency with policies to update hardware, collaborate with industry

WM. & MARY L. REV. 1695 (2022) [hereinafter *Disclosure of Private Climate Transition Risks*]. This Essay builds on that idea, as it identifies instruments as a strategy firms use to achieve their goals, and thus provides more insights on the actions a firm has taken and may need to take in the future.

⁵⁴ SB 253 § 1.

⁵⁵ SB 261 § 1.

⁵⁶ See U.S. ENV'T PROT. AGENCY, INVESTOR OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS 1990-2022, at 2-30 to 2-32 (2024), https://www.epa.gov/system/files/documents/2024-04/us-ghg-inventory-2024-main-text_04-18-2024.pdf [<https://perma.cc/8R33-BMDQ>].

⁵⁷ See *id.*

⁵⁸ *Green Power Supply Options*, U.S. ENV'T PROT. AGENCY (Aug. 4, 2025), <https://www.epa.gov/green-power-markets/green-power-supply-options> [<https://perma.cc/CYH2-WAZL>].

⁵⁹ Briana Kobor, *Our First-of-its-kind Partnership for Clean Energy Has Been Approved in Nevada*, GOOGLE (May 13, 2025), <https://blog.google/feed/nevada-clean-energy/> [<https://perma.cc/L37Q-VZF3>].

⁶⁰ Shayle Kann, *The Case for Colocating Data Centers and Generation*, LATITUDE MEDIA (Feb. 13, 2025), <https://www.latitudemedia.com/news/catalyst-the-case-for-colocating-data-centers-and-generation/> [<https://perma.cc/GG3U-XJ2T>].

partners, or improve building standards.⁶¹ Firms may reduce transportation-related emissions with policies that support hybrid work schedules, public transit-friendly office locations, or low-carbon shipping methods.⁶² And vendor contracts and management policies for waste and food are examples of instruments to manage waste- and food-related emissions.⁶³

To adapt to climate change, climate risk management requires conservative natural resource use to hedge against drastic changes in water supply, heightened heat and disaster risks, and biodiversity loss. The less society—including firms—shift natural resource use to mitigate climate change, the more natural resources must be intensively managed to adapt to climate change. With the level of greenhouse gas emissions already locked into the atmosphere, firms must contend with a certain level of adaptation regardless of mitigation efforts.

Climate change involves inherent uncertainty around natural resource impacts. For example, altered precipitation levels increase droughts in some areas and floods in others.⁶⁴ Sea level rise encourages saltwater intrusion in groundwater—thereby reducing the availability of freshwater.⁶⁵ Climate-induced wildfires, pests, and disease contribute to forest decline.⁶⁶ Climate change also changes the viability and distribution of terrestrial, aquatic, and marine life.⁶⁷

Hedging against these varied risks requires different natural resource practices. For instance, the agricultural system must shift which crops and livestock are grown and where.⁶⁸ Urban and rural forest conservation must be adjusted to combat heat waves and natural disasters.⁶⁹ Similarly, wildlife management must be adjusted to maintain functional ecosystems and livelihoods that rely on wildlife.⁷⁰ Ecosystem restoration more broadly will reduce impacts from natural disasters like flooding and drought.⁷¹ And urban land use planning can reduce water, energy, and land consumption.⁷² For firms, these adaptation strategies translate to instruments such as building footprint policies, sustainable

⁶¹ See, e.g., Leroy Paddock & Natasha Rao, *Green Supply Chain Management: A Perspective on Best Practices in GSCM Design*, 71 ARK. L. REV. 487, 503–07 (2018).

⁶² See *id.*

⁶³ See, e.g., *Private Environmental Governance*, *supra* note 53, at 156–57, 160.

⁶⁴ Tomás de Oliveira Bredariol et al., *Energy Is Vital to a Well-functioning Water Sector*, IEA (Mar. 22, 2024), <https://www.iea.org/commentaries/energy-is-vital-to-a-well-functioning-water-sector> [<https://perma.cc/X7H3-8TYD>].

⁶⁵ *Id.*

⁶⁶ U.S. GLOB. CHANGE RSCH. PROG., FIFTH NATIONAL CLIMATE ASSESSMENT 7-8 (2023).

⁶⁷ *Id.* at 6-11, 6-13–6-14, 8-16–8-17, 9-16, 10-5–10-6, 11-6.

⁶⁸ *Id.* at 6-20, 11-6.

⁶⁹ *Id.* at 6-23.

⁷⁰ *Id.* at 10-15.

⁷¹ *Id.* at 8-29, 9-20, 10-17.

⁷² *Id.* at 12-17.

building standards, infrastructure relocation policies, and ecosystem management agreements.⁷³

Firms that lack strategic instruments to adjust their natural resource use, especially as compared to other firms, will experience greater disruptions to their operations both as a result of climate change and from any regulation California imposes to manage resources. And California, as a state with risks of drought, flooding, sea level rise, wildfire, and biodiversity loss, has a particular interest in managing the water sources, forests, and land uses that can decrease the negative effects of climate change.⁷⁴

In addition to their necessity in effectuating climate mitigation and adaptation, strategic instruments also have implications for disclosure. In the financial-disclosure literature, scholars argue that effective, mandatory disclosure must be specific, useful, and comparable.⁷⁵ Specific disclosure generates precise answers to the law's prompts, rather than generic narrative responses.⁷⁶ Useful disclosure causes audiences to shift their behavior, which then pushes disclosers to shift their behavior.⁷⁷ Comparable disclosure allows investors and other stakeholders to compare firms' management performance. These three elements are complementary. The more specific disclosures are, the more comparable they are. With enhanced comparability, users can appropriately shift their behavior with respect to different firms.

Disclosing strategic instruments improves specificity, comparability, and utility. Scholars recognize that disclosures require a particular design to ensure stakeholders use the information. As Ann Lipton points out, "corporate stakeholders cannot pressure managers to change behaviors of which they are unaware."⁷⁸

⁷³ See, e.g., *Private Environmental Governance*, *supra* note 53, at 160–61.

⁷⁴ STATE OF CAL., CALIFORNIA'S CHANGING CLIMATE 2018, at 4, 12–17 (2019), https://www.energy.ca.gov/sites/default/files/2019-11/20180827_Summary_Brochure_ADA.pdf [<https://perma.cc/ZLS2-7CDA>].

⁷⁵ Cynthia A. Williams, *The Global Reporting Initiative, Transnational Corporate Accountability, and Global Regulatory Counter-Currents*, 1 U.C. IRVINE J. INT'L TRANSNAT'L & COMP. L. 67, 82 (2016) (mandatory, specific, and targeted to specific users); Barnali Choudhury, *Social Disclosure*, 13 BERKELEY BUS. L.J. 183, 210 (2016) (limited, specific, and related to corporate objectives); Rebecca Susko, *The First Amendment Implications of a Mandatory Environmental, Social, and Governance Disclosure Regime*, 48 ENV'T L. REP. NEWS & ANALYSIS 10989, 10989 (2018) (citing Williams, *supra*) (mandatory, specific, and targeted to specific users); 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, 760 (2021) (citing TCFD Report, EU guidelines, SASB Conceptual Framework) (comparable, specific, and decision-useful).

⁷⁶ Choudhury, *supra* note 75, at 213–14.

⁷⁷ Williams, *supra* note 75, at 82.

⁷⁸ Ann M. Lipton, *Not Everything Is About Investors: The Case for Mandatory Stakeholder Disclosure*, 37 YALE J. REG. 499, 506 (2020).

Disclosure, then, can arm investors, managers, and policymakers with relevant information to improve climate mitigation and adaptation efforts.

Strategic instruments—the relative absence and use of which demonstrate a firm’s commitment to climate mitigation and adaptation—arm investors with the information needed to make specific, practical demands for improved instruments. Once investors are aware of how pervasive certain instruments are in a firm, they can compare firms to their peers, decipher which instruments are most effective in which industries, and track progress on not just targets, but the instruments required to obtain those targets. For example, with respect to greenhouse gas emissions disclosure, disclosing contractual instruments is useful because some instruments yield lower substantial emissions reductions than others. Power purchase agreements have been shown to have a greater impact on renewable energy capacity than renewable energy credits.⁷⁹ Armed with such information, investor advocacy shifts from generic demands for “emissions reductions” to tailored requests that a firm use instruments with higher impact, delivering a benefit for firms that outperform their peers and pushing firms that lag behind.

Disclosing strategic instruments has benefits for managers as well. Within the firm, managers may not recognize that procurement policies or other instruments undermine the firm’s goals. This phenomenon has been observed in other sustainability reporting, where an issue has become more salient at the firm level, but managers do not question their practices with respect to that issue.⁸⁰ Indeed, firms report lack of internal understanding and difficulty translating strategy into action as among the top five barriers to achieving their ESG strategies.⁸¹ As such, requiring firms to report strategic instruments as well as consistent metrics to compare those instruments would enhance management’s ability to discern how a firm operationalizes its commitments.

Finally, disclosing strategic instruments presents utility improvements for California regulators, as insight into corporate instrument use can help regulators push industry laggards.⁸² Indeed, scholars emphasize that information regulation

⁷⁹ Jesse D. Backstrom et al., *Corporate Power Purchase Agreements: A Policy Perspective* 21 (Soc. Sci. Rsch. Network, Working Paper No. 4708811, 2024).

⁸⁰ Choudhury, *supra* note 75, at 208.

⁸¹ MORGAN STANLEY, SUSTAINABLE SIGNALS 9 (2025), https://www.morganstanley.com/assets/pdfs/MS_Institute_for_Sustainable_Investing_Sustainable_Signals_Corporate_report_2025.pdf [<https://perma.cc/T788-P5MX>].

⁸² Bradley C. Karkkainen, *Information as Environmental Regulation: TRI and Performance Benchmarking, Precursor to a New Paradigm?*, 89 GEO. L.J. 257, 309–10 (2001); Stephen Kim Park & Gerlinde Berger-Walliser, *A Firm-Driven Approach to Global Governance and Sustainability*, 52 AM. BUS. L.J. 255, 306 (2015); Annie Brett, *Rethinking Environmental Disclosure*, 112 CALIF. L. REV. 1535, 1557 (2024).

should complement, not substitute, traditional regulation.⁸³ California is familiar with using information disclosure to support a regulatory program, as California's Safer Consumer Products program uses Prop 65's chemical list to prioritize products for regulation.⁸⁴ With California's schemes to regulate water conservation, minerals, forests, and sea-level rise, strategic instrument disclosure can support efforts to improve resource management in the face of climate change.⁸⁵

If SB 253 and SB 261 seek to reduce greenhouse gas emissions and encourage climate change adaptation, and emissions reductions and climate adaptation ultimately turn on firms' instruments, then disclosure should generate responses that are specific, useful, and comparable for stakeholders to understand a firm's instrument use. Yet, as Part III demonstrates, neither current disclosures nor proposed updates to disclosure standards fully accomplish this.

III. UNDERREPORTED INSTRUMENTS IN CLIMATE REPORTING

To understand the persistent gap in reporting strategic instruments, this Part examines firms' climate disclosures aligned with the TCFD, ISSB, and GHG Protocol. It evaluates disclosures from firms covered by California's laws. It demonstrates that narrative, oftentimes vague, descriptions of strategic instruments compromise specificity, comparability, and utility.

A. Methodology

To analyze firms covered by California's disclosure laws, I used Bloomberg's company search. As a proxy for firms "doing business" in the state, I filtered for companies domiciled in California.⁸⁶ I then filtered for firms with annual sales, revenue or turnover above the requisite amount for each law. Then, I reviewed the disclosures for firms which had self-proclaimed TCFD-aligned and Greenhouse Gas Protocol-aligned disclosures from 2024 onwards. Among the 292

⁸³ Susanna Kim Ripken, *The Dangers and Drawbacks of the Disclosure Antidote: Toward a More Substantive Approach to Securities Regulation*, 58 BAYLOR L. REV. 139, 190–95 (2006); Matthew McFeeley, *Falling through the Cracks: Public Information and the Patchwork of Hydraulic Fracturing Disclosure Laws*, 38 VT. L. REV. 849, 854–55 (2014); Choudhury, *supra* note 75, at 210; Daniel C. Esty & Quentin Karpilow, *Harnessing Investor Interest in Sustainability: The Next Frontier in Environmental Information Regulation*, 36 YALE J. REG. 625, 635 (2019); David Hess, *The Transparency Trap: Non-Financial Disclosure and the Responsibility of Business to Respect Human Rights* 56 AM. BUS. L.J. 5, 26–27 (2019); Lipton, *supra* note 78, at 568.

⁸⁴ Claudia Polsky & Megan Schwarzman, *The Hidden Success of a Conspicuous Law: Proposition 65 and the Reduction of Toxic Chemical Exposures*, 47 ECOL. L.Q. 823, 864–65 (2020).

⁸⁵ CAL. WATER CODE DIV. 6; CAL. PUB. RES. CODE DIV. 3, 4, 20.6.5.

⁸⁶ Though this metric is under-inclusive of the firms covered by the laws, at the time of this writing, CARB had not finalized what constitutes "doing business" under the laws.

firms covered by SB 261, 118 had accessible TCFD-aligned disclosures. Of the 202 firms covered by SB 253, 136 had accessible GHG Protocol-aligned disclosures.

In reviewing the TCFD-aligned disclosures, I categorized the types of instruments the firms disclosed as part of their strategy, metrics, or targets. I then noted whether a firm measured its instruments with clear metrics (e.g., the percentage of energy demand covered by renewable energy). The categories reported and the number of firms which included metrics for each category are shown in Figure 1. Because any firm covered by SB 253 is also covered by SB 261, I eliminated double-counting by only reviewing whether a firm with GHG Protocol-aligned disclosures reported its emissions instruments if it did not have TCFD-aligned disclosures. This data is shown in Figure 2.

B. Results & Analysis

Figure 1

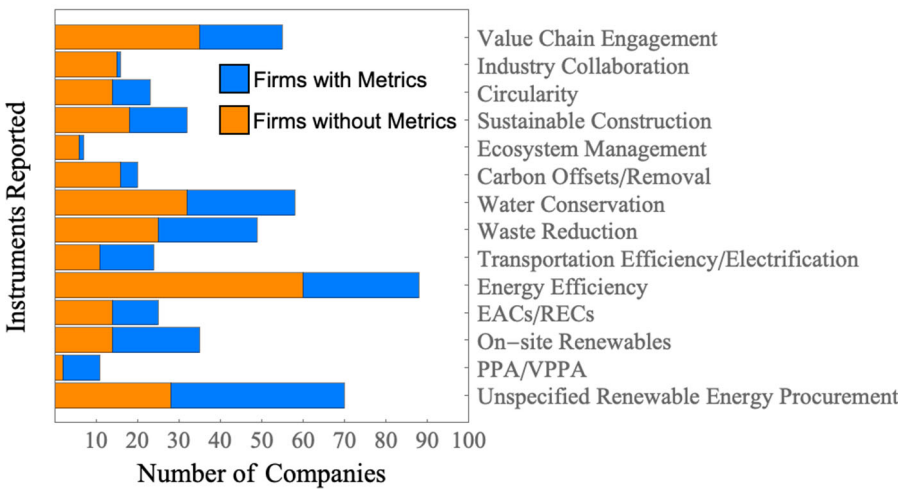
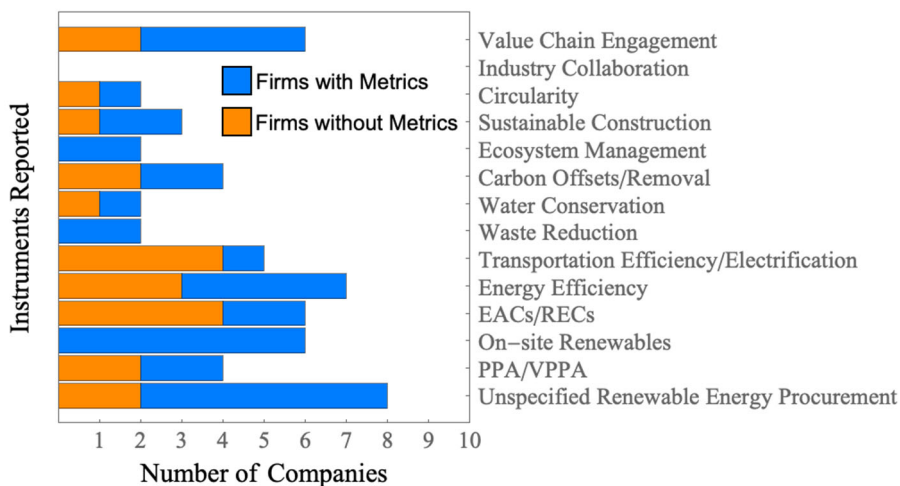


Figure 2



An analysis of corporate reports demonstrates that there are three levels of variation that hinder comparability for investors. Each level is also inadequately addressed by disclosure standards, and cumulatively, these gaps hinder the specificity, comparability, and utility of disclosure.

First, firms vary in which strategic instruments they report. Based on this analysis, it is unclear whether firms who did not report certain instruments, such as circular economy approaches or industry collaboration, do not use those instruments or just found them unnecessary to report. As such, investors cannot adequately compare firm performance across instruments. Nor is it clear that materiality explains these differences, as even firms within the same industry—who arguably face similar climate risks—vary with respect to which instruments they report.⁸⁷

Second, there is variation in how many firms report metrics for each instrument. As Figure 1 shows, there is not a consistent ratio of firms that report metrics to those that do not. Energy efficiency, for example, has a much larger percentage of firms that report metrics than ecosystem restoration. There is even discrepancy within the same firm. For example, Workday reports that one of its power purchase agreements (PPAs) will supply 233 gigawatt hours (GWh) of renewable energy yearly, but it does not report any metrics on other renewable energy procurement, energy efficiency, or industry collaboration.⁸⁸ By contrast,

⁸⁷ See Taylor Nchako, Climate Companies Spreadsheet (on file with author). Professor Michael P. Vandenbergh observed the same intra-industry variability with respect to how firms report their risks of private environmental governance. *Disclosure of Private Climate Transition Risks*, *supra* note 53, at 1732–34.

⁸⁸ WORKDAY, 2025 WORKDAY GLOBAL IMPACT REPORT 99 (2025), <https://www.workday.com>.

Applied Materials, a materials company that serves the semiconductor industry, reported metrics for renewable energy procurement, PPAs, on-site renewables, energy efficiency, circular economy, water efficiency, waste reduction, sustainable construction, and value-chain sustainability—but not for industry collaboration.⁸⁹ And Qualcomm disclosed metrics for all nine of the instruments it reports.⁹⁰

These trends hinder comparability across two dimensions. Along the first dimension, investors cannot compare firms which report the same instruments. While an investor may know that both Workday and Applied Materials, for example, use renewable energy procurement in their strategies, she will not know whether Workday performs better with respect to this instrument because it fails to report any metrics. Along the second dimension, investors cannot compare how a firm performs internally. Thus, while an investor may know that Workday has one PPA project worth 233 GWh of renewable energy annually, she will not know to what extent PPAs play a role in Workday’s strategy to reduce emissions as compared to other instruments such as energy efficiency upgrades and other types of renewable energy procurement.

Third, firms vary in how they report metrics within an instrument. Some firms report how much they *spend* on a given instrument while others report how much *output* they’ve achieved from a given instrument. Still others report the *number* of instruments they’ve executed, the *percentage* of a particular instrument relative to the total instruments used, or the *GHG emissions reductions* a given instrument has achieved. For example, Qualcomm reported that its renewable energy credits (RECs) generated over 192,000 megawatt hours of electricity.⁹¹ Meanwhile, Penguin Solutions, a software company, reported that it invested \$50,000 in RECs.⁹² Netflix reported that it matched 100% of its global electricity use with RECs.⁹³ And Snapchat reported that 100% of its sites used RECs.⁹⁴

com/content/dam/web/en-us/documents/other/workday-global-impact-report.pdf [https://perma.cc/E2VE-KXPZ].

⁸⁹ APPLIED MATERIALS, IMPACT REPORT 2024, at 42–44, 47–48, 52–55 (2024), https://www.appliedmaterials.com/content/dam/site/company/csr/doc/2024_impact_report.pdf.coredownload.inline.pdf [https://perma.cc/DJW9-UFHQ?type=image].

⁹⁰ QUALCOMM, CORPORATE RESPONSIBILITY REPORT 39–44, 49–50, 52–54 (2024), <https://www.qualcomm.com/content/dam/qcomm-martech/dm-assets/documents/2024-qualcomm-corporate-responsibility-report.pdf> [https://perma.cc/3JRX-5QHA].

⁹¹ *Id.* at 52.

⁹² PENGUIN SOLS., 2023 ESG REPORT 18 (2024), https://issuu.com/penguinsolutions/docs/penguinsolutions_2023_esg [https://perma.cc/ZXP4-47T6].

⁹³ NETFLIX, 2024 ENVIRONMENTAL SOCIAL GOVERNANCE REPORT 16 (2025), https://s22.q4cdn.com/959853165/files/doc_downloads/2025/6/2024-Netflix-Environmental-Social-Governance-Report.pdf [https://perma.cc/3TX8-4S5E].

⁹⁴ SNAP INC., CITIZEN SNAP REPORT FY24, at 19 (2025), https://downloads.ctfassets.net/ngit5gcrb661/40S3LMSMm79XM43lip7z2h/16f781850723263d36c31c348a174966/FY2024_Citizen_Snap_Report_R5.pdf [https://perma.cc/E5DA-7MLV].

These variations hinder comparisons across firms because an investor cannot equally assess firms' strategies if the firms report the instruments used in their strategies using different metrics. Likewise, some firms use different metrics within their reports. Instead of reporting comparable instruments—like energy efficiency savings and different forms of renewable energy procurement—along the same metrics, some firms mix and match output, absolute amounts, and percentage.⁹⁵ Thus, investors again lack the ability to understand how much a firm prioritizes one instrument over another.

Despite these multidimensional comparison challenges, the TCFD/ISSB, GHG Protocol, and ESRS fail to fully account for them. At the time of this writing, the ISSB (and by implication, the TCFD) has not proposed amendments to specify reporting on a firm's instruments. The GHG Protocol and the ESRS leave gaps, both individually and together, with respect to these comparison challenges.

The GHG Protocol seeks to amend its standard to include firms' actions and market instruments. At the time of this writing, however, the Protocol is considering adopting these updates as voluntary reporting.⁹⁶ This thus exposes the standards to the same problem: some firms will choose to report their instruments while others will opt out. The result is disclosures which leave investors unable to compare how well firms perform with respect to operationalizing their goals. Even if the GHG

⁹⁵ *Compare* GILEAD, TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES 7 (2024), <https://www.gilead.com/-/media/gileadcorpdesign/pdf/responsibility/sustainability/task-force-on-climaterelated-financial-disclosures-tcfd-summary-report.pdf> [https://perma.cc/5LCZ-MEV5] (describing energy efficiency in terms of energy savings per kilowatt hour and cost saving), *with* GILEAD, 2023 ENVIRONMENTAL SOCIAL GOVERNANCE IMPACT REPORT 81 (2024), <https://www.gilead.com/-/media/files/pdfs/2023-environmental-social-governance-impact-report.pdf> [https://perma.cc/RZN2-R8WC] (describing renewable energy use in terms of percentage of electricity demand); *see also, e.g.*, FORTINET, TCFD INDEX 55 (2024), <https://www.fortinet.com/content/dam/fortinet/assets/reports/fortinet-2024-sustainability-report-tcfd-index.pdf> [https://perma.cc/QP37-SP7H] (describing decarbonization goals in terms of emissions reductions but renewable energy use in terms of percentage of facility space using 100% renewable electricity); EDWARDS, EDWARDS LIFESCIENCES 2024 CORPORATE IMPACT REPORT 37–38, <https://www.edwards.com/assets/pdfs/2024-corporate-impact-report.pdf> [https://perma.cc/7FLT-BFW6] (describing energy efficiency in terms of projects completed and renewable energy in terms of percentage of energy demand met and megawatts produced); EQUINIX, SUSTAINABILITY REPORT FY 2023, at 4 (2024), https://sustainability.equinix.com/wp-content/uploads/2024/07/Equinix-Inc_2023-Sustainability-Report.pdf [https://perma.cc/22LW-GBZX] (describing energy efficiency in terms of dollars invested and power usage effectiveness and renewable energy use in terms of percentage of energy); MACERICH, 2024 CORPORATE RESPONSIBILITY REPORT 22, <https://assets.macerichepicenter.com/FileManager/Corporate/PageContent/2024%20Macerich%20Corporate%20Responsibility%20Report.pdf> [https://perma.cc/ZY68-PVN5] (describing renewable procurement in terms of number of participating properties, renewable generation in terms of kilowatts produced, and overall renewable use in terms of percentage of energy consumption).

⁹⁶ GREENHOUSE GAS PROTOCOL, *supra* note 28, at 4.

Protocol requires firms to report their actions and market instruments, the only consistency requirement in reporting this information is for actions and instruments that result in emissions reductions.

The ESRS, for its part, will require firms to report on their climate mitigation and adaptation “actions.” It also proposes some standardization on the metrics that should be reported. With respect to actions that will require “significant financial resources,” a firm must disclose the amount of resources allocated to the action.⁹⁷ Firms must also report the emissions reductions they expect to achieve from each climate change mitigation and adaptation action.⁹⁸ In reporting its progress on implementing its transition plan, however, a firm still has flexibility to choose which metrics it uses, and there is no consistency requirement for instruments that can be reported using the same metrics.⁹⁹

Thus, the GHG Protocol and ESRS, working together, at best improve comparability for firms which (a) spend a lot of money on a certain instrument or (b) expect emissions reductions from certain instruments. This still leaves gaps in instruments that may not meet an established threshold for “significant financial resources” or which may not take certain actions to decarbonize.

This last point—that some firms use instruments without obvious emissions reductions—illustrates a broader gap in the disclosure standards. The advances in requiring disclosure of strategic instruments and the metrics associated with those instruments disproportionately focus on climate mitigation. Even the ESRS—which requires firms to report on climate mitigation and adaptation instruments—only requires specificity with respect to actions that have emissions-reduction outcomes. This hyperfocus on climate mitigation overlooks the importance of climate adaptation in managing a firm’s climate risk.

As explained in Part II, firms face a variety of impacts from climate change, and adapting meaningfully to shifts in natural resource use requires different instruments. Yet the current focus of climate adaptation disclosure—the number and composition of committees and the decision-making processes—do not elucidate whether and how climate adaptation manifests in a firm’s strategy. This reduces the ability of investors to discern what instruments a firm uses, to what extent a firm uses those instruments, and how those instruments compare to its peers. Indeed, previous research has demonstrated that investors do not find the narrative, generic statements in TCFD disclosures useful.¹⁰⁰ Climate disclosure, then, must contend with standardized disclosure of strategic instruments. The next Part offers a modest account of a path forward.

⁹⁷ EFRAG, ESRS 2 GENERAL DISCLOSURES, *supra* note 52, at 14.

⁹⁸ EFRAG, *supra* note 49, at 14.

⁹⁹ *Id.* at 11.

¹⁰⁰ Cynthia A. Williams, *Does Climate Disclosure Work to Reduce Greenhouse Gas Emissions? Emerging Evidence Suggests Cautious Optimism*, 48 SEATTLE U. L. REV. 571, 590 (2025).

IV. PATHS FORWARD

To fill the gaps identified in Part III, climate disclosure should require companies to disclose climate mitigation and adaptation instruments. Though a complete sketch of this proposed scheme is beyond the scope of this Essay, a brief description is due. Drawing on the approaches of different disclosure regimes, this Part outlines broad principles for a path forward in disclosing strategic instruments.

First, disclosure should identify categories of instruments. For each instrument type, a firm must disclose whether or not it uses the instrument. Determining which instruments should be listed can be accomplished by a comprehensive review of firms' existing disclosures. This approach is similar to that of the CDP, a non-profit environmental disclosure system, which asks firms whether they use certain instruments, such as whether a firm engages with its value chain, whether it has an environmental policy, and which energy-related activities it engages in.¹⁰¹

Second, disclosures should require instruments to be reported along consistent metrics. The ESRS and the GHG Protocol advance this principle for climate mitigation instruments. However, there should be a consensus that all emissions-focused instruments should either use the amount of emissions reduced by the instrument, the amount of energy produced using the instrument, the total spend on each instrument, or the percentage of instruments that are, say, PPAs. The

¹⁰¹ *About Us*, CDP, <https://www.cdp.net/en/about> [<https://perma.cc/59PA-TD36>] (last visited May 6, 2026); CDP, FULL CORPORATE QUESTIONNAIRE MODULES 1-6, at 6, 8 (2025), https://assets.ctfassets.net/v7uy4j80khf8/2vwnUxFR0ogGypKMP6P5wq/39a028b0f0385eef77e1fbe5253a16fa/Full_Corporate_Questionnaire_Modules_1-6.pdf [<https://perma.cc/ZN6A-VBB4>]; CDP, FULL CORPORATE QUESTIONNAIRE MODULE 7, at 5 (2025), https://assets.ctfassets.net/v7uy4j80khf8/7hOBP5kpqYOfYxbQIbNzZ/a2838bf8636b97e1fee12f15b9b475e8/Full_Corporate_Questionnaire_Module_7.pdf [<https://perma.cc/CD8B-CMTF>]. Though the disclosures require affirmative or negative disclosure on certain practices, these disclosures do not require metrics. Similarly, some disclosures, like whether a firm is a member of any environmental collaborative initiative, are disconnected from climate strategy. For instance, Disney's 2024 CDP Report acknowledges its membership in the Sustainable Apparel Coalition, which aims to reduce the textile industry's impact on climate change. CDP, THE WALT DISNEY COMPANY: 2024 CDP CORPORATE QUESTIONNAIRE 2024, at 60 (2025), <https://impact.disney.com/app/uploads/2025/05/CDP-Survey-Response-2024.pdf> [<https://perma.cc/UER2-CNAR>]; *About Us: Who We Are*, CASCALE, <https://cascale.org/about-us/who-we-are/> [<https://perma.cc/325W-JNA2>] (last visited May 6, 2026). However, it does not recognize these efforts as part of its climate opportunities. Similar deficiencies exist in supplier engagement. CDP, THE WALT DISNEY COMPANY, *supra* at 89–90. Even in the dedicated section on climate opportunities, firms identify opportunities in a check-the-box format, but the strategy to achieve the opportunity is narrative. For instance, Disney's 2024 CDP report checks the box for energy efficiency as an opportunity to reduce climate risks. It goes on to state its strategy includes "additional investments in sustainable design and energy efficiency projects . . ." *Id.* at 37. Similarly, Disney recognized water use as a climate risk under a 4.0-degree warming scenario. To address the risk, it is "implementing operational and watershed protection strategies." *Id.* at 77–78.

optimal approach could even be a combination of these metrics. Investors may find it useful to understand the performance of certain instruments and then to evaluate whether firms spend proportionately to an instrument’s effectiveness.

Other climate mitigation instruments as well as climate adaptation instruments should also use consistent metrics. Though the instruments used in climate adaptation provide a greater opportunity for variation, some general principles could apply. First, instruments that can be meaningfully measured in terms of absolute or percentage values should follow a consistent metric as emissions measurements. For instance, water use, waste diversion, and ecosystem restoration provide useful insights whether they are measured in terms of absolute water/waste/land area conserved/diverted/restored or in terms of the percentage change relative to a baseline. Requiring consistent metrics across instruments enables firms to strategize across instruments in a consistent manner.

By contrast, some instruments may not be meaningfully measured using certain metrics. Many policy-based instruments would fall into this category. For example, the absolute amount of industry collaborations, suppliers who adhere to a policy, or sustainable construction projects do not provide information on the extent of these instruments in corporate strategy. Rather, disclosure on the percentage of activities, suppliers, and facilities that meet these policies would provide insight on the extent of a firm’s instrument use and how far a firm has before it achieves 100% compliance.

The third broad principle in designing such standards is that they should incorporate the relevant stakeholders. Here, disclosure serves to provide primarily investors with information. As such, investor input on the relevant metrics for each instrument category would be invaluable. The GHG Protocol, ISSB, and ESRS already take this stakeholder-driven approach to updating standards, and the same approach should be adopted with respect to reporting strategic instruments. Analyses like the one conducted in Part III can provide useful insights into what information firms currently disclose as a source of comparison to what information investors would prefer. In sum, standardizing disclosure for strategic instruments should build on the work of existing disclosure standards by enhancing specificity, comparability, and utility across categories.

This approach to ESG reporting has implications beyond California.¹⁰² Illinois, New Jersey, and New York have proposed greenhouse gas emissions disclosure bills

¹⁰² This author recognizes that the constitutionality of any disclosure scheme is the defining feature in the United States. Though beyond the scope of this Essay, this author posits that framing disclosure of strategic instruments around resource use may improve the constitutional standing of these laws. Though Supreme Court precedent does not clarify what makes a topic “controversial,” it is clear that controversial does not merely mean uncontested and indisputable. Sean J. Griffith, *What’s “Controversial” About ESG?*, 101 NEB. L. REV. 876, 900–01 (2023). Griffith suggests that controversy means “pretextual.” *Id.* at 914–16. This author recognizes that climate change may be considered controversial. By focusing on strategic instruments, disclosure

that resemble California's.¹⁰³ New York also has proposed a climate risk disclosure bill that is identical to California's.¹⁰⁴ Global efforts to adjust and harmonize standards also provide an opportunity to enhance disclosure of strategic instruments. And with the ongoing advancements in nature-related financial disclosures,¹⁰⁵ a focus on strategic instruments will provide insights into how firms manage their reliance and impact on biodiversity and ecosystems.

CONCLUSION

As ESG disclosure becomes increasingly interoperable and more advanced, there is an opportunity to critically analyze how ESG reporting schemes have fulfilled their purported purpose. This Essay proposes elevating an underreported item in disclosure—strategic instruments—that better meet the demands for useful information on firms' climate mitigation and adaptation strategy.

may be safely considered to be “commercial” as these tools by definition involve commercial transactions. Moreover, its focus on resource use may evade the label as “controversial” because states have long been recognized as having inherent authority to manage natural resources. *See, e.g.,* Robert L. Fischman & Angela M. King, *Savings Clauses and Trends in Natural Resources Federalism*, 32 WM. & MARY ENV'T L. & POL'Y REV. 129 (2007) (discussing state power in resource management); Blake Hudson, *Dynamic Forest Federalism*, 71 WASH. & LEE L. REV. 1643 (2017).

¹⁰³ H.B. 3673, 104th Gen. Assemb., Reg. Sess. § 5 (Ill. 2025); S. 4117, 221st Leg., Reg. Sess. § 3 (N.J. 2025); S. 3456 / Assemb. 4282, 2025–2026 Reg. Sess. § 74-0101(2) (N.Y. 2025). Colorado has a similar bill, but it has been placed in committee indefinitely. H.B. 25-1119, 75th Gen. Assemb., 1st Reg. Sess. (Colo. 2025).

¹⁰⁴ S. 3697, 2025–2026 Reg. Sess. § 77-0101(4) (N.Y. 2025).

¹⁰⁵ TNFD Welcomes ISSB Decision on Nature-Related Standard Setting Drawing on TNFD Framework as Adoption Crosses 730 Organisationscoln and USD 22 Trillion in AUM, TNFD (Nov. 7, 2025), <https://tnfd.global/issb-decision-on-nature-related-standard-setting-drawing-on-tnfd-framework/> [https://perma.cc/F45D-93P2].