

Net-Zero or Net-Illusion? Corporate Climate Disclosures and the Political Economy of Greenwashing

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Abstract

This theory-led conceptual review critically examines whether corporate net-zero reporting strengthens substantive climate accountability or enables sophisticated greenwashing within contemporary market-based climate governance. Drawing on critical accounting, legitimacy, stakeholder, political economy and impression-management perspectives, the paper synthesizes literature on Scope 1 - 3 emissions, carbon offsets and credits, ESG ratings, sustainability assurance, and leading disclosure architectures including TCFD, ISSB, GRI and CDP. The synthesis distinguishes substantively oriented commitments—characterized by credible interim targets, material Scope 3 coverage, priority to absolute emissions reductions, limited reliance on offsets, and meaningful external verification—from predominantly symbolic commitments built around distant aspirations, selective metrics and weak accountability. The reviewed literature suggests that voluntary and investor-oriented disclosure systems can improve climate visibility while also creating discretion that supports legitimacy management and selective representation of environmental performance. Emerging mandatory disclosure, anti-greenwashing and assurance reforms may reduce these weaknesses, but their accountability potential depends on reporting boundaries, enforcement and whose materiality concerns are recognized. The paper argues that meaningful ecological accountability requires reporting systems that prioritize verifiable real-economy emissions reductions, transparent treatment of residual emissions and offsets, broader stakeholder accountability, and enforceable governance mechanisms.

Keywords

Net-Zero Reporting, Corporate Greenwashing, Climate Disclosures, Critical

1. Introduction

Climate change has emerged as one of the most pressing global challenges confronting governments, corporations, regulators, and society in the twenty-first century (Babacan, 2025; Prabhakar, 2025). Increasing scientific evidence regarding rising global temperatures, biodiversity loss, ecological degradation, and extreme weather events has intensified international calls for urgent climate action and carbon reduction strategies (Intergovernmental Panel on Climate Change, 2023). In response, the global sustainability agenda has increasingly centered on climate change mitigation, decarbonization, and the transition toward net-zero emissions (Balgehshiri & Zohuri, 2023). The adoption of the Paris Agreement represented a major turning point in global climate governance by committing nations to limit global warming and pursue pathways toward carbon neutrality (Chen et al., 2022). Consequently, governments, multinational corporations, financial institutions, and international organizations have embraced net-zero targets as central mechanisms for addressing climate-related risks and demonstrating environmental responsibility (United Nations, 2021; Bolton, Kacperczyk, & Samama, 2022).

Against this backdrop, corporate net-zero commitments have proliferated rapidly across industries including energy, manufacturing, finance, transportation, technology, and consumer goods. Large corporations increasingly publicize ambitious climate pledges, often promising to achieve net-zero emissions by 2050 or earlier (Esty & de Arriba-Sellier, 2023). These commitments are frequently embedded within broader Environmental, Social, and Governance (ESG) strategies and sustainability agendas aimed at responding to growing societal demands for responsible corporate conduct (Chopra et al., 2024). Investors, regulators, consumers, and civil society organizations now exert considerable pressure on firms to disclose climate-related risks, carbon footprints, and sustainability performance (Ngo et al., 2023). As a result, sustainability reporting and climate disclosures have become integral components of modern corporate communication and governance structures (Farooq & Muhammad, 2025; Aureli et al., 2020).

The rise of sustainability accounting and ESG reporting has significantly transformed the nature and scope of corporate reporting practices (Dasinapa, 2024). Traditional accounting systems, historically focused on financial performance and shareholder wealth maximization, are increasingly expected to incorporate environmental and social dimensions of organizational performance (Bebbington et al., 2014). Various international frameworks and standards, including those promoted by the Global Reporting Initiative, the Task Force on Climate-related Financial Disclosures, and the International Sustainability Standards Board, have accelerated the institutionalization of climate-related disclosures within corporate

reporting systems (Yoon, Choi, & Kim, 2025). These frameworks encourage organizations to report emissions data, climate risks, decarbonization strategies, and progress toward sustainability targets. Consequently, climate disclosures are increasingly portrayed as mechanisms for promoting transparency, accountability, and stakeholder trust (Eccles & Krzus, 2018).

Despite the growing prominence of net-zero reporting, substantial concerns remain regarding the credibility, transparency, and accountability of many corporate climate commitments. Critics argue that a significant proportion of net-zero pledges are vague, unsubstantiated, and heavily dependent on future technological assumptions or carbon offsetting mechanisms rather than genuine emissions reductions (Dyke, Watson, & Knorr, 2021). In many instances, corporations continue environmentally destructive operations while simultaneously presenting themselves as sustainability leaders through carefully crafted climate narratives and symbolic disclosures (Watson, Knorr, & Dyke, 2021). Such practices have intensified scholarly and public concerns regarding corporate greenwashing, whereby organizations selectively disclose environmental information or exaggerate sustainability achievements to create favorable public impressions without undertaking meaningful environmental transformation (Delmas & Burbano, 2011).

Corporate greenwashing has become increasingly sophisticated within the contemporary ESG and sustainability reporting environment (Free, Jones, & Tremblay, 2025; Jamil & Wahyuni, 2024). Sustainability reports, integrated reports, and climate disclosures often function not merely as accountability tools but also as instruments of legitimacy construction, reputation management, and stakeholder persuasion (Cho, Laine, Roberts, & Rodrigue, 2015). Firms may strategically emphasize selective environmental achievements while omitting material information concerning emissions, pollution, or climate risks. The growing reliance on voluntary disclosures further exacerbates these concerns because firms retain substantial discretion over what information is disclosed, how it is measured, and how sustainability performance is framed (Michelon, Pilonato, & Ricceri, 2015). Consequently, questions arise regarding whether net-zero reporting genuinely advances ecological accountability or merely reproduces symbolic forms of corporate legitimacy under the guise of sustainability.

Accounting and reporting systems occupy a central position within these debates because they shape how environmental performance is measured, communicated, verified, and governed (de Oliveira et al., 2025). Accounting is not a neutral or purely technical practice; rather, it is deeply implicated in broader social, political, and economic processes (Hopwood, 2009). Sustainability accounting and climate reporting influence organizational priorities, stakeholder perceptions, resource allocation decisions, and regulatory responses (Zik-Rullahi & Jide, 2023). From a critical accounting perspective, corporate reporting practices can serve ideological functions by legitimizing existing economic arrangements and reinforcing corporate power structures (Awashreh, 2026). The increasing integration of climate issues into accounting frameworks therefore necessitates critical exam-

ination of the extent to which sustainability reporting promotes substantive accountability or facilitates the continuation of environmentally harmful business practices through symbolic compliance (Juusola & Srouji, 2023).

The rapid growth of voluntary climate disclosures reflects increasing pressure from investors, governments, international institutions, activists, and consumers for greater environmental transparency (Bose et al., 2024). Institutional investors increasingly consider climate-related risks in investment decisions, while regulators in several jurisdictions are moving toward mandatory climate disclosure regimes (Krueger et al., 2024). Simultaneously, corporations face mounting reputational pressures to demonstrate alignment with sustainability goals and stakeholder expectations. However, this environment also creates tensions between genuine accountability and corporate image management. Organizations may seek to balance societal expectations with profit-maximization objectives by strategically deploying sustainability narratives that enhance legitimacy without fundamentally altering underlying business models (Khan, 2024). Consequently, net-zero reporting exists within a contested space where transparency, accountability, symbolism, and impression management intersect.

These developments underscore the importance of adopting critical accounting perspectives in examining net-zero reporting and corporate greenwashing. Critical accounting scholarship challenges the assumption that reporting practices are objective representations of organizational reality and instead emphasizes the political, ideological, and power-laden dimensions of accounting systems (Chandratreya, 2025). Applying a critical lens to net-zero reporting allows for deeper interrogation of how sustainability disclosures may obscure contradictions between corporate environmental rhetoric and actual ecological impacts (Booth, 2025; Huston, 2025). It also enables examination of the broader structural and institutional conditions that permit greenwashing practices to persist within neoliberal market systems.

Notwithstanding the increasing volume of sustainability disclosures and corporate climate commitments, significant gaps remain in understanding how accounting and reporting systems may enable or constrain greenwashing practices within net-zero agendas. Much contemporary corporate reporting continues to prioritize symbolic legitimacy and investor-oriented narratives over substantive ecological accountability (Gultian, 2025; Calado, 2026). This raises important concerns regarding the effectiveness of existing sustainability reporting frameworks in addressing climate change and promoting genuine corporate responsibility.

Against this background, the aim of this paper is to critically examine how net-zero practices may facilitate corporate greenwashing from a critical accounting perspective. Specifically, the paper seeks to analyze how corporations utilize sustainability disclosures and climate reporting practices to construct legitimacy, manage stakeholder perceptions, and potentially obscure environmental contradictions. The paper also evaluates the role of accounting frameworks, ESG report-

ing systems, and sustainability governance mechanisms in either facilitating or constraining greenwashing practices.

Accordingly, the central research question guiding the paper is: Under what conditions do corporate net-zero disclosures strengthen substantive climate accountability, and under what conditions do they function primarily as symbolic devices that facilitate greenwashing?

This study contributes to the growing literature on sustainability accounting and critical accounting by providing a critical analysis of the political and ideological dimensions of net-zero reporting. Unlike conventional studies that treat climate disclosures primarily as technical or managerial tools, this paper interrogates the broader social, institutional, and power-related implications of sustainability reporting practices. In doing so, the study contributes to ongoing debates concerning corporate accountability, ecological governance, and the transformative potential of accounting in addressing contemporary environmental crises.

2. Methodological Approach

This paper adopts a theory-led conceptual review rather than a systematic review or meta-analysis. Consistent with guidance on rigorous literature reviews and conceptual articles (Snyder, 2019; Jaakkola, 2020), its purpose is to synthesize and critically interrogate established and emerging ideas across sustainability accounting, climate governance and corporate communication, and to use theory to explain when net-zero disclosure is more likely to support accountability or symbolic legitimacy.

Literature identification was purposive but structured. The review was updated through September 2026 and considered peer-reviewed studies in accounting, management, business ethics, sustainability and climate governance, with priority given to work published in journals indexed in major multidisciplinary databases such as Scopus and Web of Science. Supplementary searches used Google Scholar and publisher search interfaces, while authoritative institutional and regulatory materials were drawn from sources including the IPCC, UN/UNFCCC, IFRS Foundation/ISSB, GRI and relevant public regulators. Search combinations included “net-zero” AND disclosure/reporting/accountability/greenwashing; “climate disclosure” AND legitimacy/impression management/political economy; “carbon offset*” AND greenwashing/additionality/permanence; “Scope 3” AND disclosure/comparability; and the terms “sustainability assurance”, “ESG ratings”, and “mandatory climate disclosure”. Foundational sources published before the recent net-zero literature were retained where they were central to the theoretical framing.

Sources were included when they directly addressed corporate climate disclosure, net-zero commitments, emissions accounting, offsets, sustainability assurance, ESG ratings, greenwashing, or the political economy of environmental reporting. Sources were deprioritized when they were purely technical, unrelated to corporate reporting or accountability, duplicative, or offered unsupported com-

mentary without a clear evidentiary or theoretical basis. Evidence extraction focused on five recurring dimensions: target design and interim milestones; emissions boundary and Scope 3 coverage; absolute versus intensity-based reductions; dependence on offsets and removals; and verification, assurance and enforcement. These dimensions were then compared across the theoretical lenses used in the paper.

Critical accounting and political economy perspectives were used to interrogate power, financialization and the institutional interests embedded in climate-reporting systems; legitimacy and impression-management perspectives were used to interpret symbolic disclosure and reputational strategies; and stakeholder theory was used to assess whose information needs and accountability claims are recognized or marginalized. The resulting synthesis is interpretive and theory-building rather than a statistical estimate of the prevalence of greenwashing. Accordingly, statements about corporate practices in the sections that follow should be read as patterns and arguments supported by the reviewed literature, not as population-level prevalence claims.

3. Conceptual and Theoretical Foundations

3.1. Net-Zero Reporting

The growing prominence of climate governance and sustainability discourse has elevated net-zero reporting into a central component of corporate accountability and environmental disclosure practices (Fuoli & Beelitz, 2024). Net-zero emissions generally refer to a condition in which anthropogenic greenhouse gas emissions released into the atmosphere are balanced by equivalent removals or offsets over a specified period (Fankhauser et al., 2022; Intergovernmental Panel on Climate Change, 2023). The concept has become a defining feature of global climate policy following the adoption of the Paris Agreement, which seeks to limit global warming by encouraging countries and corporations to pursue pathways toward carbon neutrality. Within corporate contexts, net-zero reporting involves the disclosure of organizational commitments, strategies, targets, and performance measures relating to greenhouse gas emission reductions and climate transition plans (Bolton et al., 2020).

Although the concepts of carbon neutrality and net-zero are frequently used interchangeably, important conceptual distinctions exist between them (Singh et al., 2026). Carbon neutrality traditionally refers to the balancing of carbon dioxide emissions through offsetting activities such as afforestation, renewable energy investments, or carbon credit purchases, often without requiring substantial operational transformation (Dyke, Watson, & Knorr, 2021). Net-zero, by contrast, implies a broader and more rigorous commitment involving deep and sustained reductions in greenhouse gas emissions across organizational operations and value chains before residual emissions are neutralized through credible removal mechanisms (Meadowcroft & Rosenbloom, 2023). Consequently, net-zero commitments are increasingly viewed as more comprehensive and transformative than

conventional carbon neutrality initiatives because they emphasize actual decarbonization rather than reliance on compensatory offsetting arrangements.

Central to net-zero reporting is the measurement and disclosure of greenhouse gas emissions across different operational boundaries (Sharaf-Addin, 2024; Sharaf-Addin & Al-Dhubaibi, 2025). The Greenhouse Gas Protocol classifies emissions into three categories: Scope 1, Scope 2, and Scope 3 emissions. Scope 1 emissions refer to direct emissions generated from sources owned or controlled by the reporting entity, including emissions from company facilities, manufacturing processes, and corporate vehicles. Scope 2 emissions comprise indirect emissions resulting from purchased electricity, heating, cooling, or steam consumed by the organization. Scope 3 emissions encompass all other indirect emissions occurring throughout the value chain, including supplier activities, transportation, employee commuting, product usage, and waste disposal. Scope 3 emissions are particularly significant because they often constitute the largest proportion of corporate carbon footprints, especially within sectors such as oil and gas, manufacturing, aviation, and retail (Greenhouse Gas Protocol, 2011). However, Scope 3 reporting remains highly problematic due to methodological complexities, limited data availability, and inconsistent disclosure practices (Klaaßen & Stoll, 2021).

The increasing emphasis on net-zero targets has also accelerated the use of carbon offsets and carbon credits as mechanisms for achieving climate commitments (Axelsson et al., 2024). Carbon offsets refer to compensatory activities designed to reduce or remove greenhouse gases elsewhere in order to balance emissions produced by organizations or individuals (Aldy & Halem, 2024). Carbon credits, by contrast, represent tradable certificates that grant the right to emit a specified quantity of carbon dioxide equivalent emissions (MacKenzie, 2009). While carbon markets and offsetting mechanisms are often promoted as efficient market-based solutions to climate change, critics argue that excessive reliance on offsets may undermine genuine decarbonization efforts by allowing corporations to continue carbon-intensive activities while maintaining claims of environmental responsibility (Carton et al., 2020). Concerns regarding double counting, unverifiable emission reductions, lack of permanence, and weak regulatory oversight further complicate the legitimacy of carbon offset schemes within net-zero reporting frameworks (Sasaki, 2025).

The expansion of corporate climate disclosures has led to the development of several international sustainability reporting frameworks aimed at standardizing and improving climate-related reporting practices (Oreshkova, 2023). The Task Force on Climate-related Financial Disclosures (TCFD), established by the Financial Stability Board, has emerged as one of the most influential frameworks guiding climate risk disclosure (Board, 2017). The TCFD framework encourages organizations to disclose governance structures, climate-related risks and opportunities, risk management practices, and climate-related metrics and targets (Brief, 2022). Similarly, the International Sustainability Standards Board (ISSB) was established to enhance global consistency and comparability in sustainability dis-

closures through standardized reporting requirements integrated with financial reporting systems.

In addition, the Global Reporting Initiative (GRI) has played a central role in shaping sustainability reporting by providing organizations with comprehensive disclosure standards covering environmental, social, and governance dimensions (De Villiers, La Torre, & Molinari, 2022). The GRI framework emphasizes stakeholder inclusivity, materiality, and transparency in sustainability reporting (Adams & Frost, 2008). Likewise, the Carbon Disclosure Project (CDP) has become a prominent platform through which firms disclose climate-related data, emissions performance, water management practices, and environmental risks to investors and stakeholders. Collectively, these frameworks reflect increasing institutional pressures for greater climate accountability and transparency (Ali & Kamraju, 2025). Nevertheless, critics argue that many disclosure systems remain heavily reliant on voluntary compliance and managerial discretion, thereby limiting their effectiveness in ensuring substantive environmental accountability (Michelon et al., 2015).

3.2. Corporate Greenwashing

The rapid growth of sustainability reporting and corporate climate commitments has simultaneously intensified concerns regarding corporate greenwashing (Michelon, Pilonato, & Ricceri, 2015). Greenwashing broadly refers to organizational practices that mislead stakeholders regarding the environmental performance, sustainability credentials, or ecological impacts of corporations, products, or services (Delmas & Burbano, 2011). It involves the strategic use of environmental narratives, sustainability disclosures, and symbolic commitments to create favorable public perceptions while substantive environmental performance remains limited or contradictory (Meng et al., 2019). Within the context of net-zero reporting, greenwashing occurs when corporations exaggerate climate achievements, obscure environmental harms, or present misleading claims concerning decarbonization and sustainability efforts (Williams, 2025).

Corporate greenwashing manifests in several interconnected forms (de Freitas Netto et al., 2020). One prominent form involves symbolic disclosures, whereby organizations issue sustainability reports, climate commitments, or ESG statements primarily for reputational purposes without implementing meaningful operational changes (Cho, Laine, Roberts, & Rodrigue, 2015). Such disclosures often emphasize aspirational climate targets and sustainability rhetoric while failing to provide measurable pathways for achieving stated objectives. Another common manifestation is selective reporting, in which firms disclose favorable environmental indicators while omitting material information relating to emissions intensity, environmental risks, or harmful operational activities (Awuah et al., 2026). Selective disclosure practices create information asymmetries that distort stakeholder understanding of actual environmental performance (Michelon, Pilonato, & Ricceri, 2015).

Carbon offset manipulation also represents a growing dimension of corporate greenwashing (Sasaki, 2025). Many firms rely heavily on offsetting arrangements and carbon credits to claim net-zero status while continuing carbon-intensive operations. Critics argue that such practices enable organizations to maintain unsustainable business models under the appearance of environmental responsibility (Abdelkafi et al., 2023). Relatedly, misleading sustainability narratives are increasingly embedded within corporate communications, advertisements, annual reports, and ESG disclosures. These narratives frequently employ vague, ambiguous, or aspirational language designed to project environmental commitment without clear accountability mechanisms or measurable outcomes (Lyon & Montgomery, 2015).

Another significant concern relates to vague climate commitments. Many corporate net-zero pledges lack specificity regarding interim targets, implementation strategies, verification procedures, and accountability structures (Axelsson & McGivern, 2022). Firms may announce distant climate ambitions extending to 2050 or beyond while avoiding short-term emissions reduction obligations or operational restructuring. Such long-term commitments often create symbolic legitimacy without imposing immediate organizational responsibilities (Dyke et al., 2021). Consequently, sustainability reporting may function less as an instrument of accountability and more as a mechanism for maintaining corporate legitimacy within increasingly sustainability-conscious markets (Abeysekera, 2022).

The distinction between substantive sustainability action and symbolic legitimacy claims is therefore central to understanding greenwashing practices (Walker & Wan, 2012). Substantive environmental action involves genuine organizational transformation through measurable emissions reductions, investment in sustainable technologies, operational restructuring, and transparent accountability mechanisms (Kallay, 2025). Symbolic actions, by contrast, focus primarily on image management and stakeholder persuasion rather than meaningful ecological change (Westphal, 2023). Many corporations strategically deploy sustainability disclosures to cultivate perceptions of environmental responsibility while preserving underlying business models that contribute to ecological degradation (Bhattacharjee, Singh, & Singh, 2025).

From this perspective, sustainability reports increasingly operate as public relations tools and reputation management instruments rather than purely informational disclosures (Al Mahameed & Abras, 2025). Corporate sustainability reporting can serve legitimacy-seeking functions by aligning organizational narratives with prevailing societal expectations concerning climate responsibility and environmental stewardship (Hatta & Mide, 2025). Through carefully constructed sustainability narratives, corporations seek to maintain social acceptance, reduce regulatory scrutiny, attract environmentally conscious investors, and strengthen brand value. Consequently, sustainability disclosures may obscure contradictions between corporate environmental rhetoric and actual environmental performance, thereby reinforcing concerns regarding the symbolic nature of many contempo-

rary net-zero commitments (Fuoli & Beelitz, 2024).

3.3. Critical Accounting Perspective

Critical accounting scholarship provides an important intellectual foundation for examining the relationship between net-zero reporting and corporate greenwashing (Di Vaio et al., 2024). Unlike conventional accounting approaches that portray accounting as a neutral, objective, and technical process, critical accounting perspectives emphasize that accounting is inherently social, political, and ideological in nature (Hopwood, 2009). Accounting systems shape organizational priorities, influence resource allocation decisions, construct notions of value and performance, and legitimize particular economic and social arrangements (Pasolo, 2024). Consequently, sustainability accounting and climate disclosures cannot be understood merely as technical reporting mechanisms; they are deeply embedded within broader power relations and institutional structures (Juusola & Srouji, 2023).

Accounting practices play a significant role in constructing and reinforcing power relations within capitalist economies (Haynes, 2025). Through processes of measurement, classification, and disclosure, accounting determines what becomes visible, valued, and governable within organizations and society (D'Alessio, 2026). Sustainability reporting frameworks similarly influence how environmental issues are defined, quantified, and managed (Stefanescu, 2022). Critical scholars argue that contemporary sustainability accounting often prioritizes investor-oriented climate risks and market-based solutions while marginalizing broader concerns relating to ecological justice, social inequality, and systemic environmental degradation (Bebbington & Larrinaga, 2014). In this regard, accounting systems may contribute to the reproduction of dominant economic ideologies rather than facilitating transformative ecological change.

Corporate reporting is also increasingly viewed as a form of impression management through which organizations strategically shape stakeholder perceptions (Diouf & Boiral, 2017). Impression management theory suggests that firms selectively disclose information to influence public interpretations of organizational legitimacy, competence, and responsibility (Brennan & Merkl-Davies, 2022). Sustainability reports, ESG disclosures, and net-zero narratives therefore function not only as communication tools but also as instruments through which corporations construct favorable environmental identities (Strauß & Šimunović, 2025). Firms may strategically frame sustainability narratives, emphasize positive environmental achievements, and minimize negative impacts in order to secure legitimacy and maintain stakeholder confidence (Aggerholm & Thomsen, 2024).

Critical accounting perspectives also provide important critiques of neoliberal capitalism and market-based environmentalism (Alawattage & Wickramasinghe, 2022). Neoliberal approaches to sustainability typically emphasize voluntary disclosure, carbon markets, ESG investing, and market-driven governance mechanisms as solutions to climate change (Hans, 2023). However, critical scholars

question whether such approaches fundamentally challenge the structural drivers of environmental degradation embedded within capitalist systems characterized by perpetual growth, profit maximization, and resource extraction (Spence, 2009). From this standpoint, net-zero reporting may function as part of a broader ideological framework that enables corporations to appear environmentally responsible while preserving existing economic arrangements and accumulation processes.

3.4. Theoretical Review

Several theoretical perspectives are particularly relevant for understanding the dynamics of net-zero reporting and corporate greenwashing. Legitimacy theory posits that organizations disclose sustainability information to maintain congruence between corporate activities and societal expectations (Suchman, 1995). Within this framework, net-zero commitments can be interpreted as legitimacy-seeking responses to increasing public concern regarding climate change and environmental responsibility. Firms use sustainability reporting to demonstrate alignment with social norms, thereby securing continued societal acceptance and organizational survival (Simoni, Bini, & Bellucci, 2020).

Stakeholder theory similarly explains sustainability disclosures as responses to pressures exerted by various stakeholder groups, including investors, regulators, customers, employees, activists, and non-governmental organizations (Freeman, 1984). Growing stakeholder demands for environmental accountability encourage corporations to adopt ESG reporting practices and climate commitments designed to satisfy diverse constituencies and protect organizational reputation (Agbakwuru et al., 2024).

Political economy theory extends these insights by emphasizing the broader structural and institutional dimensions of corporate reporting practices (Wang et al., 2014). From this perspective, sustainability reporting reflects underlying capitalist interests, power structures, and ideological processes that shape organizational behavior and public discourse (Tinker, Merino, & Neimark, 1982). Climate disclosures are therefore not merely informational mechanisms but also political instruments that influence how environmental issues are understood and governed within society (Knox-Hayes & Levy, 2011; Gupta & Mason, 2016).

Critical theory further interrogates whether sustainability accounting genuinely promotes ecological transformation or merely reproduces the existing capitalist order under the language of sustainability and responsibility (Lehner, 2026; Fuchs, 2017). Critical theorists argue that market-based sustainability initiatives often commodify environmental issues and reduce ecological crises to technical management problems rather than addressing their structural causes (Gray, 2010). Consequently, net-zero reporting may reinforce corporate legitimacy and market expansion without generating substantive ecological accountability.

Finally, impression management theory provides valuable insights into the communicative and symbolic dimensions of corporate sustainability reporting

(Šimunović, Murtarelli, & Romenti, 2024). Organizations strategically design climate disclosures and sustainability narratives to shape stakeholder impressions, mitigate reputational risks, and influence perceptions of environmental responsibility (Brennan & Merkl-Davies, 2013). This perspective is particularly relevant in understanding how greenwashing practices emerge within contemporary net-zero reporting regimes characterized by increasing stakeholder scrutiny and reputational pressures (Foerster & Spencer, 2023).

4. Evolution of Net-Zero Reporting

The evolution of net-zero reporting is closely intertwined with broader transformations in global sustainability governance, environmental accountability, and responsible investment practices (Di Vaio et al., 2024). Over the past two decades, climate change has shifted from being viewed primarily as an environmental issue to becoming a central economic, political, and financial concern (Ricart, Gandolfi & Castelletti, 2023). This transformation has fundamentally altered corporate reporting landscapes, leading organizations to increasingly incorporate climate-related risks, carbon emissions, and sustainability commitments into mainstream reporting practices (Papa, 2025). The emergence of net-zero reporting reflects not only growing societal awareness of climate change but also changing expectations regarding the role of corporations in addressing environmental and social challenges (Bondi & Nocella, 2025).

One of the major drivers of the evolution of net-zero reporting has been the rapid emergence and expansion of Environmental, Social, and Governance (ESG) investing (Zhang, Iqbal, & Shahzad, 2024). ESG investing refers to investment approaches that integrate environmental, social, and governance considerations into financial decision-making processes (Eccles, Ioannou, & Serafeim, 2014). Traditionally, corporate performance was evaluated primarily through financial indicators such as profitability, liquidity, and shareholder returns (Hasidi, Baheri, & Hajar, 2024). However, increasing recognition of climate-related financial risks, reputational concerns, and sustainability challenges has encouraged investors to broaden evaluation criteria beyond purely financial metrics. Institutional investors, asset managers, pension funds, and financial institutions now increasingly consider corporate climate strategies, emissions performance, and sustainability disclosures as critical determinants of long-term value creation and investment risk (Krueger, Sautner, & Starks, 2020).

The growth of ESG investing has significantly contributed to the institutionalization of net-zero reporting within corporate governance structures (Gözlügöl, 2022). Investors increasingly demand transparent climate disclosures, carbon reduction strategies, and measurable sustainability targets from corporations seeking access to capital markets (Ameli et al., 2020). Major financial institutions and asset management firms have publicly emphasized the importance of climate-related accountability and sustainable business practices (Greenwood & Warren, 2022). Consequently, firms are under mounting pressure to demonstrate align-

ment with sustainability objectives through ESG reports, integrated reports, and net-zero commitments (Friede, Busch, & Bassen, 2015). The rise of ESG investment indices, sustainability rankings, and responsible investment frameworks has further reinforced the commercial significance of climate-related reporting (Veza et al., 2026).

Parallel to the growth of ESG investing has been the rise of climate governance at both national and international levels (Doni & Johannsdottir, 2019). Climate governance refers to the frameworks, institutions, policies, and regulatory mechanisms established to coordinate responses to climate change across governments, corporations, civil society, and international organizations (Bulkeley et al., 2014). The increasing severity of climate crises and scientific consensus regarding anthropogenic global warming have intensified demands for coordinated climate action and accountability. Governments and regulatory bodies across the world have progressively introduced policies aimed at reducing greenhouse gas emissions, promoting renewable energy transitions, and strengthening environmental reporting requirements.

A pivotal milestone in the development of global climate governance was the adoption of the Paris Agreement during the twenty-first Conference of the Parties (COP21) in 2015. The Paris Agreement established an international commitment to limit global temperature increases to well below 2°C above pre-industrial levels while pursuing efforts to restrict warming to 1.5°C (United Nations Framework Convention on Climate Change, 2015). Importantly, the agreement accelerated global momentum toward net-zero emissions targets by encouraging countries and organizations to pursue long-term decarbonization pathways (Abualoyoun & Amar, 2025). In the aftermath of the Paris Agreement, numerous governments, multinational corporations, financial institutions, and cities announced net-zero commitments aligned with global climate goals (Hale et al., 2022). Consequently, the language of “net-zero”, “carbon neutrality”, and “climate transition” rapidly entered mainstream corporate reporting and sustainability discourse (Di Vaio et al., 2024).

The influence of international climate agreements has also intensified pressure from institutional investors and financial stakeholders for enhanced climate accountability. Large institutional investors increasingly recognize climate change as a systemic financial risk capable of affecting asset valuations, operational continuity, and long-term economic stability (Monasterolo, 2020). As a result, investors now demand greater transparency regarding corporate exposure to climate-related risks, emissions trajectories, and transition strategies. Shareholder activism surrounding environmental issues has also intensified, with investors increasingly engaging corporations on climate governance, emissions reduction targets, and sustainability reporting practices (Flammer, Toffel, & Viswanathan, 2021). This evolving investment environment has compelled corporations to incorporate climate disclosures and net-zero commitments into strategic communication and governance frameworks in order to maintain legitimacy and investor confidence.

The growing prominence of climate-related reporting has simultaneously contributed to the development of sustainability assurance practices. Sustainability assurance refers to the independent verification and evaluation of sustainability disclosures, ESG reports, and non-financial information provided by corporations (O'Dwyer, Owen, & Unerman, 2011). As sustainability reporting expanded, concerns emerged regarding the reliability, comparability, and credibility of corporate climate disclosures. Stakeholders increasingly questioned whether firms' sustainability claims accurately reflected underlying environmental performance or merely represented symbolic public relations exercises. In response, assurance services developed as mechanisms intended to enhance trust, transparency, and accountability within sustainability reporting processes.

Professional accounting firms, including the major global assurance providers such as Deloitte, PwC, KPMG, and EY, have increasingly expanded their sustainability assurance services to address growing corporate and investor demand for verified ESG disclosures (Fernandez-Feijoo, Romero, & Ruiz, 2016). Sustainability assurance now encompasses verification of emissions data, climate risk assessments, carbon accounting systems, and progress toward net-zero targets. Nevertheless, critical scholars argue that sustainability assurance remains characterized by methodological inconsistencies, weak regulatory oversight, and potential conflicts of interest arising from the commercial relationships between corporations and assurance providers (Boiral & Heras-Saizarbitoria, 2020). Consequently, questions remain regarding the extent to which sustainability assurance genuinely strengthens accountability or merely reinforces corporate legitimacy.

The evolution of net-zero reporting is also evident in the increasing adoption of net-zero language within corporate communication and reporting practices (Sharaf-Addin, 2024). Organizations across diverse sectors now routinely integrate climate-related terminology such as "net-zero emissions", "carbon neutrality", "decarbonization", "climate resilience", and "sustainable transition" into annual reports, sustainability reports, investor presentations, and corporate mission statements. This shift reflects both growing stakeholder expectations and the strategic value of sustainability narratives within competitive markets (Lyon & Montgomery, 2015). Net-zero language has become an important mechanism through which corporations seek to position themselves as environmentally responsible and future-oriented organizations.

Simultaneously, the volume and sophistication of sustainability reports and integrated reports have expanded significantly over recent decades. Sustainability reporting has evolved from peripheral environmental disclosures into highly institutionalized reporting practices embedded within corporate governance systems. Many corporations now produce standalone sustainability reports or integrated reports combining financial and non-financial information to demonstrate long-term value creation and stakeholder accountability (Eccles & Krzus, 2018). Integrated reporting frameworks encourage firms to explain how environmental, social, governance, and financial factors interact to influence organizational per-

formance and sustainability outcomes. This reporting evolution reflects broader shifts toward stakeholder-oriented governance and increasing recognition of environmental and social risks within corporate strategy.

The expansion of voluntary disclosure regimes has further accelerated the development of net-zero reporting (Kreibich, 2024). Various international frameworks and disclosure initiatives, including the Task Force on Climate-related Financial Disclosures, the Global Reporting Initiative, the Carbon Disclosure Project, and the International Sustainability Standards Board, have established guidelines aimed at standardizing climate-related reporting and improving transparency. These frameworks encourage organizations to disclose emissions data, climate risks, governance structures, sustainability strategies, and progress toward net-zero targets. Although many disclosure initiatives remain voluntary, they exert significant normative and institutional pressures on corporations to conform to emerging expectations concerning climate accountability and sustainability governance (Adams & Larrinaga, 2019).

However, the expansion of voluntary disclosure regimes has also generated important criticisms and tensions. Critics argue that voluntary reporting frameworks often grant corporations substantial discretion regarding what information is disclosed, how emissions are measured, and which sustainability indicators are prioritized (Michelon, Pilonato, & Ricceri, 2015). This flexibility may facilitate selective reporting, symbolic disclosures, and impression management practices that undermine substantive accountability. Moreover, the increasing commercialization of ESG reporting and sustainability rankings has contributed to concerns that climate disclosures may prioritize reputational management and investor appeasement over genuine ecological transformation (Cho, Laine, Roberts, & Rodrigue, 2015).

5. Net-Zero Reporting as a Mechanism of Greenwashing

The rapid expansion of corporate net-zero commitments and sustainability disclosures has intensified concerns regarding the use of climate reporting as a mechanism of corporate greenwashing (Foerster & Spencer, 2023). While organizations increasingly portray themselves as environmentally responsible actors committed to climate mitigation and sustainable development, critical scholarship questions whether many net-zero initiatives represent substantive ecological transformation or merely symbolic legitimacy strategies (Cho et al. 2015). Within contemporary capitalism, sustainability reporting frequently operates at the intersection of accountability, reputation management, and market positioning (Miles & Ringham, 2020). Consequently, net-zero reporting has become a contested arena in which firms seek to reconcile increasing societal expectations for environmental responsibility with the imperatives of profit maximization, shareholder value creation, and continued economic growth. From a critical accounting perspective, corporate climate disclosures may therefore function less as mechanisms of genuine accountability and more as instruments for constructing favorable environmental narratives while preserving environ-

mentally harmful business practices.

5.1. Symbolic versus Substantive Climate Commitments

One of the most significant manifestations of greenwashing within net-zero reporting involves the distinction between symbolic and substantive climate commitments. In recent years, corporations across industries have increasingly announced ambitious long-term net-zero targets, often pledging to achieve carbon neutrality by 2050 or 2060 in alignment with global climate agendas and the Paris Agreement (United Nations, 2021). These commitments are frequently presented as evidence of corporate environmental leadership and climate responsibility. However, critics argue that many such pledges remain largely symbolic because they lack credible implementation plans, measurable interim targets, and enforceable accountability mechanisms (Dyke et al., 2021).

A central concern is that distant net-zero targets allow corporations to defer meaningful climate action into the future while avoiding immediate operational transformation. By focusing on long-term aspirations extending several decades ahead, firms can cultivate reputational legitimacy without committing to substantial short-term emissions reductions (Lyon & Montgomery, 2015). In many instances, organizations announce ambitious future goals while continuing to expand fossil fuel extraction, carbon-intensive production processes, and environmentally harmful supply chain activities. This temporal displacement of accountability enables corporations to appear aligned with sustainability expectations while maintaining business models fundamentally dependent on environmentally unsustainable practices.

The symbolic nature of many net-zero commitments is further reinforced by the absence of clear transition pathways and transparent performance indicators. Numerous firms provide limited information regarding how emissions reductions will be achieved, what technologies will be employed, or how climate risks will be managed across operational and supply chain activities (Klaaßen & Stoll, 2021). Interim milestones are often vague or omitted entirely, thereby reducing opportunities for external monitoring and stakeholder scrutiny. Consequently, net-zero reporting may create an illusion of environmental responsibility without requiring substantive organizational change.

Critical accounting scholars argue that these symbolic commitments function as legitimacy-seeking mechanisms designed to maintain organizational reputation and social acceptance in increasingly sustainability-conscious societies (Suchman, 1995). Sustainability disclosures become tools through which corporations strategically construct environmental identities that obscure contradictions between climate rhetoric and ecological realities. As a result, net-zero reporting may contribute to the normalization of “performative sustainability”, whereby symbolic gestures substitute for genuine environmental accountability and transformation.

For analytical purposes, this paper treats a net-zero commitment as substan-

tively oriented when it contains five features: 1) near- and medium-term interim targets that create accountability before the long-term net-zero date; 2) comprehensive coverage of material Scope 1, Scope 2 and Scope 3 emissions, with transparent justification for any exclusions; 3) priority to absolute gross emissions reductions rather than reliance on intensity improvements alone; 4) limited use of high-integrity offsets or removals for residual, hard-to-abate emissions after feasible reductions have been pursued; and 5) externally verifiable progress supported by governance responsibility, transparent transition plans and assurance covering material emissions and target data. A commitment is treated as predominantly symbolic when it relies mainly on distant aspirations, excludes material value-chain emissions, highlights favourable intensity indicators while absolute emissions remain high or increase, depends heavily on poorly transparent offsets, or lacks credible verification and accountability mechanisms. These criteria are used as an analytical continuum, rather than a mechanical binary score, to distinguish transformation-oriented commitments from disclosure that primarily serves legitimacy or impression-management purposes.

5.2. Manipulation through Carbon Offsets

The growing reliance on carbon offsets and carbon credits represents another important mechanism through which net-zero reporting may facilitate greenwashing practices. Carbon offsetting allows organizations to compensate for greenhouse gas emissions by financing projects intended to reduce, avoid, or remove emissions elsewhere, including reforestation initiatives, renewable energy projects, and carbon capture technologies (MacKenzie, 2009). Within many corporate net-zero strategies, offsetting mechanisms play a central role in enabling firms to claim carbon neutrality while continuing carbon-intensive operations.

Critics argue that excessive dependence on offsets undermines the integrity of net-zero commitments because it prioritizes compensatory accounting mechanisms over actual emissions reductions (Carton et al., 2020). Rather than fundamentally transforming production systems, energy consumption patterns, or supply chains, corporations may rely on offsets to maintain existing business practices while simultaneously presenting themselves as environmentally responsible organizations. In this sense, carbon offsets can operate as instruments of “carbon indulgence”, enabling firms to purchase symbolic environmental legitimacy without addressing the structural causes of emissions generation.

Significant concerns also exist regarding the credibility and effectiveness of carbon markets. Carbon credit systems are frequently characterized by weak regulatory oversight, inconsistent methodologies, and limited transparency. One major issue involves double counting, whereby the same emissions reduction is claimed simultaneously by multiple actors, thereby inflating reported climate achievements (Ma & Duan, 2024). Additionally, many carbon offset projects face challenges relating to additionality, permanence, and verification (Pan et al., 2022). In some cases, projects credited with generating carbon reductions may have oc-

curred regardless of offset financing, while others may fail to produce long-term environmental benefits due to deforestation, land-use changes, or project discontinuation.

The unverifiable nature of many carbon credits further exacerbates concerns regarding the reliability of offset-based net-zero claims. Measurement and verification processes are often highly complex, particularly within international carbon trading systems involving diverse regulatory jurisdictions and environmental contexts (Green, 2021). Consequently, firms may report substantial offset-related climate achievements despite significant uncertainties regarding the actual environmental impact of such initiatives.

Beyond technical concerns, carbon offsetting also raises profound ethical questions. Critics argue that carbon markets commodify pollution by transforming emissions into tradable financial assets, thereby reinforcing market-centered approaches to environmental governance (Spash, 2010). Moreover, offset projects are frequently located in developing countries, raising concerns regarding environmental justice, land dispossession, and neo-colonial exploitation. From a critical accounting perspective, reliance on carbon offsets may therefore perpetuate inequalities and ecological harm while enabling corporations in developed economies to maintain unsustainable consumption and production practices under the guise of climate responsibility (McAfee, 2016).

5.3. Selective Disclosure and Reporting Bias

Selective disclosure and reporting bias constitute additional mechanisms through which net-zero reporting may facilitate greenwashing (Paliampelou, 2026). Sustainability reporting frameworks often provide corporations with substantial discretion regarding what environmental information is disclosed, how performance indicators are measured, and which aspects of sustainability are emphasized (Gnanaweera & Kunori, 2018). This flexibility creates opportunities for organizations to strategically manage stakeholder perceptions through selective transparency and impression management practices.

One of the most prominent forms of selective disclosure involves the omission or underreporting of Scope 3 emissions. Scope 3 emissions encompass indirect emissions generated throughout a corporation's value chain, including supplier activities, transportation, product usage, and waste disposal. For many industries, particularly oil and gas, aviation, retail, and manufacturing, Scope 3 emissions constitute the largest proportion of total organizational carbon footprints (Klaaßen & Stoll, 2021). Nevertheless, many corporations either exclude Scope 3 emissions from sustainability reports or provide incomplete and inconsistent disclosures due to methodological complexities and limited regulatory requirements.

The omission of Scope 3 emissions allows firms to significantly understate their environmental impacts while maintaining claims of sustainability progress (Hettler & Graf-Vlachy, 2024). By focusing primarily on Scope 1 and Scope 2 emissions, organizations may present misleading representations of overall carbon

performance and decarbonization achievements. This selective reporting undermines stakeholder understanding of actual environmental risks and contributes to the construction of overly favorable corporate sustainability narratives.

Cherry-picking favorable metrics also represents a common greenwashing strategy within sustainability reporting (Janik & Ryszko, 2025). Corporations frequently emphasize environmental indicators that portray positive performance while neglecting adverse environmental impacts or controversial operational activities (Cho et al., 2015). For example, firms may highlight renewable energy investments, recycling initiatives, or emissions intensity reductions while omitting information regarding total emissions growth, biodiversity destruction, or fossil fuel expansion. Such reporting practices create asymmetrical representations of sustainability performance that prioritize reputational enhancement over comprehensive accountability.

The lack of comparability and standardization across sustainability reporting frameworks further complicates the credibility of net-zero disclosures. Although convergence has increased, major frameworks retain different purposes, materiality concepts, reporting boundaries and metrics. The TCFD architecture and its successor ISSB standards emphasize information material to investors and enterprise value, whereas GRI places greater weight on an organization's impacts on the economy, environment and people; CDP also operates through a disclosure questionnaire and scoring architecture. These differences can lead firms to report different emissions boundaries, transition metrics and assumptions under different frameworks, making cross-firm and cross-period comparison difficult. The incorporation of the TCFD recommendations into IFRS S2 has reduced some fragmentation, and IFRS S2 adds requirements on matters such as Scope 3 emissions, industry-based metrics and planned use of carbon credits; however, interoperability does not eliminate the distinction between investor-focused financial materiality and broader impact materiality (IFRS Foundation, 2026; De Villiers, La Torre, & Molinari, 2022). Where reporting choices remain discretionary, firms may engage in framework shopping or emphasize the standard that presents their performance most favourably. Thus, framework multiplicity can weaken comparability and create space for selective disclosure unless regulators require consistent boundaries, reconciliations, transparent assumptions and assurance of material climate information.

5.4. ESG Ratings and Sustainability Branding

The expansion of ESG investing and sustainability reporting has also generated growing reliance on ESG ratings, sustainability indices, and corporate environmental rankings. ESG rating agencies evaluate corporate performance across environmental, social, and governance dimensions and provide assessments intended to guide investors and stakeholders in evaluating sustainability risks and organizational responsibility (Berg, Koelbel, & Rigobon, 2022). However, significant contradictions and inconsistencies within ESG rating systems raise im-

portant concerns regarding their reliability, objectivity, and role in facilitating greenwashing.

One major criticism relates to the considerable divergence between ESG ratings assigned by different rating agencies. Corporations frequently receive widely inconsistent ESG scores depending on the methodologies, weighting systems, and indicators employed by rating providers (Arslan, Yener, & Akturan, 2025). This lack of consistency undermines the credibility of ESG evaluations and creates opportunities for corporations to strategically promote favorable sustainability rankings while downplaying less favorable assessments. Moreover, firms operating within environmentally harmful industries may still achieve relatively high ESG scores due to strong governance structures or social initiatives despite substantial environmental impacts (Ortas et al., 2015).

Corporate sustainability rankings increasingly function as branding and reputational management tools within competitive markets. Sustainability awards, ESG certifications, and climate leadership rankings are commonly integrated into corporate marketing campaigns, investor communications, and public relations strategies. As sustainability becomes commercially valuable, corporations increasingly commodify environmental responsibility as part of broader brand management and market positioning strategies (Nascimento & Loureiro, 2024). Consequently, sustainability reporting risks becoming subordinated to commercial image construction rather than substantive ecological accountability.

The commercialization of sustainability reporting further reflects broader neoliberal trends within contemporary climate governance. ESG reporting has evolved into a rapidly expanding global industry involving consultants, rating agencies, assurance providers, financial institutions, and corporate advisors (Fagbemi et al., 2025). While these developments have increased attention toward environmental accountability, they have also transformed sustainability into a market-driven enterprise shaped by commercial incentives and reputational competition. Critical scholars argue that this commercialization risks reducing sustainability reporting to a symbolic management exercise disconnected from meaningful environmental transformation (Spence, 2009).

5.5. Assurance and Audit Limitations

The rapid expansion of sustainability reporting has intensified demands for independent assurance and verification of climate-related disclosures. Sustainability assurance is intended to enhance the credibility, reliability, and transparency of ESG reports, emissions data, and net-zero commitments (Christensen et al., 2024). However, significant limitations within existing assurance practices raise concerns regarding their effectiveness in addressing greenwashing and strengthening substantive accountability.

One major issue relates to the generally weak nature of sustainability assurance engagements. Unlike traditional financial audits, sustainability assurance practices often operate under limited assurance standards that provide substantially

lower levels of verification and scrutiny. Many assurance reports focus narrowly on selected indicators or disclosure processes rather than comprehensively evaluating the accuracy, completeness, or credibility of underlying sustainability claims (Boiral & Heras-Saizarbitoria, 2020). Consequently, assurance practices may reinforce perceptions of accountability without rigorously challenging corporate climate narratives.

The absence of universally binding verification standards further undermines the consistency and reliability of sustainability assurance. Although frameworks such as ISAE 3000 provide guidance for non-financial assurance engagements, sustainability assurance methodologies remain fragmented and inconsistently applied across jurisdictions and firms. Differences in reporting boundaries, emissions calculations, materiality assessments, and assurance scopes create substantial variation in assurance quality and comparability (Lehner, 2025). This fragmented environment limits stakeholders' ability to evaluate the credibility of net-zero disclosures and sustainability reports.

Potential conflicts of interest among assurance providers also generate significant concerns from a critical accounting perspective (Akpan, Oluwagbade, & Adewura, 2023). Large professional services firms such as Deloitte, PwC, KPMG, and EY dominate the global sustainability assurance market while simultaneously providing consulting, advisory, tax, and strategic services to corporate clients. This dual role creates tensions between commercial interests and independent accountability functions. Assurance providers may face incentives to avoid challenging corporate sustainability claims too aggressively in order to preserve lucrative client relationships and consulting opportunities (Sikka, 2009).

Moreover, the increasing involvement of major accounting firms in sustainability consulting and ESG advisory services raises broader concerns regarding the corporatization and financialization of climate governance. Rather than fundamentally challenging unsustainable business practices, assurance systems may function primarily to legitimize corporate climate disclosures and reinforce stakeholder confidence in existing market structures (Free, Jones, & Tremblay, 2025). Consequently, sustainability assurance risks becoming part of the broader machinery of greenwashing by providing symbolic credibility to sustainability narratives without ensuring substantive environmental accountability.

6. Critical Implications for Accounting and Accountability

The growing institutionalization of net-zero reporting and sustainability disclosures has significant implications for accounting, accountability, and the broader political economy of climate governance. While contemporary corporate reporting increasingly incorporates climate-related information, critical accounting scholars argue that many sustainability initiatives remain embedded within neoliberal market logics that prioritize economic growth, capital accumulation, and shareholder value maximization over genuine ecological transformation (Gray,

2010; Bebbington, Brown, & Frame, 2007). Consequently, climate accounting and net-zero reporting cannot be understood merely as neutral technical practices; rather, they are deeply political processes that shape how environmental problems are defined, measured, governed, and ultimately managed. From this perspective, contemporary sustainability reporting frameworks may simultaneously enhance visibility around climate issues while constraining the possibility of more radical ecological and socio-economic change.

6.1. The Financialization of Climate Change

One of the most significant critical implications of contemporary net-zero reporting is the increasing financialization of climate change. Financialization refers to the growing dominance of financial logics, market mechanisms, and investor-oriented approaches in shaping economic and social governance processes (Marchand & Morel, 2025). Within climate governance, environmental challenges are increasingly framed not primarily as ecological or ethical crises, but as financial risks capable of affecting corporate profitability, investment returns, and market stability (Dang et al., 2026).

The rise of ESG investing, climate risk disclosures, carbon markets, and sustainability-linked financial instruments demonstrate how climate change has become deeply integrated into global financial systems (Raihan & Sarker, 2026). Climate-related reporting frameworks such as the Task Force on Climate-related Financial Disclosures explicitly encourage corporations to assess and disclose climate risks in terms of financial materiality, investor exposure, and market resilience. Consequently, climate accountability increasingly revolves around protecting financial value rather than safeguarding ecological systems or vulnerable communities (Miller & Power, 2013).

This financialized approach has profound implications for the nature and purpose of sustainability accounting. Climate issues become translated into measurable economic variables, investment opportunities, and risk management exercises. Environmental degradation is reframed as a problem of market inefficiency and financial uncertainty rather than as a structural consequence of unsustainable production and consumption systems (Spash, 2010). As a result, sustainability reporting often prioritizes issues that are financially material to corporations and investors while marginalizing broader social and ecological concerns that cannot easily be quantified or monetized.

Critical scholars argue that market-centered approaches dominate sustainability governance because they align climate action with prevailing neoliberal economic ideologies (Weber & Soderstrom, 2015). Within this framework, corporations are positioned as central actors capable of solving environmental problems through innovation, market adaptation, and voluntary disclosures. However, this emphasis on market-based solutions may obscure deeper structural drivers of climate change, including extractive capitalism, overconsumption, and unequal global power relations. Thus, while net-zero reporting may create the appearance

of climate responsiveness, it can simultaneously reinforce the economic systems contributing to ecological crises (Munir, Naqvi, & Li, 2024).

Furthermore, financialized climate governance tends to privilege the interests of investors, financial institutions, and multinational corporations over those of local communities, workers, and marginalized populations disproportionately affected by climate change. Sustainability accounting therefore risks becoming an instrument for stabilizing capitalist accumulation rather than promoting ecological justice or transformative environmental accountability (Gray, 2010). From a critical accounting perspective, the challenge is not simply improving climate disclosures, but fundamentally questioning the market-oriented assumptions underpinning contemporary sustainability governance.

6.2. The Commodification of Carbon

Closely connected to the financialization of climate change is the increasing commodification of carbon within contemporary sustainability accounting systems. Commodification refers to the process through which environmental resources, social relations, or ecological functions are transformed into tradable economic assets within market systems (Polanyi, 1944). In the context of climate governance, carbon emissions are increasingly quantified, priced, traded, and exchanged through carbon markets, offset schemes, and emissions trading systems.

Under carbon trading mechanisms, greenhouse gas emissions become measurable units capable of being bought and sold within financial markets. Carbon credits and offsets function as market instruments through which corporations can compensate for emissions by purchasing verified emissions reductions elsewhere (MacKenzie, 2009). This transformation of carbon into tradable assets has become central to many corporate net-zero strategies and sustainability disclosures.

Proponents argue that carbon markets create economic incentives for emissions reductions by internalizing environmental costs into market transactions. However, critical scholars question the ethical and political implications of monetizing pollution and transforming ecological harm into financial commodities (Spash, 2010). The commodification of carbon may create the illusion that environmental degradation can be effectively managed through market exchanges without requiring substantial changes to production systems, consumption patterns, or economic structures.

From a critical accounting perspective, carbon commodification raises concerns regarding the moral legitimacy of allowing corporations to “purchase” environmental responsibility while continuing carbon-intensive activities. Carbon offsets may enable firms to maintain environmentally harmful operations while simultaneously claiming climate neutrality through compensatory accounting mechanisms (Juvonen, 2023). In this sense, the commodification of carbon risks reducing climate responsibility to a transactional exercise in financial optimization rather than a substantive commitment to ecological sustainability.

The ethical implications of carbon commodification are particularly signifi-

cant in relation to global inequalities and environmental justice. Many carbon offset projects are implemented in developing countries where land, forests, and natural resources are used to generate carbon credits for corporations in wealthier economies (Bumpus & Liverman, 2008). Critics argue that such arrangements may reproduce neo-colonial dynamics by transferring environmental burdens and land-use restrictions onto vulnerable communities while allowing corporations in developed countries to sustain high-emissions lifestyles and business models.

Additionally, the commodification of carbon may encourage the prioritization of measurable and marketable environmental interventions over broader ecological concerns that are difficult to quantify financially. Complex ecological systems become reduced to carbon metrics, thereby narrowing sustainability governance to issues of emissions accounting while neglecting biodiversity loss, social displacement, environmental inequality, and ecosystem integrity (Lohmann, 2009). Consequently, climate accounting systems risk privileging financial calculability over holistic ecological understanding.

6.3. Limits of Conventional Accounting

The rise of net-zero reporting also exposes fundamental limitations within conventional accounting frameworks in capturing ecological degradation and environmental externalities. Traditional accounting systems have historically been designed to measure financial performance, profitability, and shareholder value, rather than ecological sustainability or social well-being (Nicholls, 2020). As a result, environmental harms such as biodiversity loss, ecosystem destruction, and long-term climate impacts are often excluded from formal accounting systems or treated as externalities beyond the scope of financial reporting.

Gross Domestic Product (GDP)-centered economic models and profit-oriented reporting frameworks further reinforce this limitation by prioritizing economic growth and financial returns as primary indicators of societal progress. Such models fail to adequately account for the depletion of natural resources, environmental degradation, and intergenerational ecological risks associated with carbon-intensive economic activity (Xu et al., 2026). Consequently, firms may report increasing financial performance while simultaneously contributing to environmental decline, thereby creating a structural disconnect between economic accounting and ecological reality.

From a critical accounting perspective, this epistemological limitation reflects a deeper ontological issue: conventional accounting is grounded in a worldview that privileges financial capital over natural and social capital. As a result, sustainability reporting initiatives often attempt to integrate environmental considerations into existing accounting structures without fundamentally challenging their underlying assumptions. This limits the transformative potential of accounting in addressing climate change and reinforces the dominance of financialized conceptions of value (Bebbington & Larrinaga, 2014).

6.4. Accountability Deficit

Despite the rapid growth of sustainability reporting and net-zero commitments, a significant accountability deficit continues to characterize contemporary climate governance. While corporations increasingly disclose climate-related information and sustainability narratives, mechanisms for enforcing environmental accountability remain weak, fragmented, and largely voluntary (Di Vaio et al., 2025). Consequently, many net-zero commitments lack credible oversight, binding obligations, or meaningful sanctions for non-compliance.

One major challenge is uneven legal enforceability across jurisdictions. Frameworks such as the GRI Standards, ISSB Standards and CDP can improve reporting structure, transparency and consistency, but their application depends on jurisdictional adoption, listing rules and organizational participation; consequently, reporting under these frameworks does not always carry equivalent legal obligations or sanctions (Bosetti, 2023). This variation can preserve substantial managerial discretion regarding disclosure boundaries, emissions measurement choices and the sustainability metrics emphasized.

Weak regulatory oversight further exacerbates accountability challenges. In many jurisdictions, climate disclosures are not subject to the same legal rigor, auditing standards, or enforcement mechanisms as financial reporting. Sustainability reports often contain aspirational statements, forward-looking commitments, and unverifiable claims that escape meaningful regulatory scrutiny (Boiral, 2013). Consequently, organizations may engage in symbolic reporting practices designed to enhance legitimacy without implementing substantive environmental reforms.

The voluntary disclosure environment also creates incentives for selective transparency and impression management. Firms may strategically disclose favorable climate information while concealing environmentally harmful activities, controversial investments, or emissions-intensive operations (Cho et al., 2015). The absence of standardized reporting methodologies further undermines comparability and stakeholder capacity to evaluate corporate sustainability performance effectively.

Critical accounting scholars argue that this accountability deficit reflects deeper structural contradictions within neoliberal governance systems that prioritize corporate self-regulation and market discipline over direct state intervention and democratic accountability (Chiapello, 2017). Sustainability governance increasingly relies on voluntary commitments, market incentives, and reputational pressures rather than binding environmental regulations and enforceable ecological obligations. As a result, corporate climate accountability often remains dependent on organizations policing themselves within competitive market environments fundamentally oriented toward profit maximization.

The accountability deficit is also evident in the limited participation of affected communities, civil society groups, and marginalized stakeholders within sustainability reporting processes (Kaur & Lodhia, 2019). Climate disclosures are frequently designed primarily for investors, regulators, and financial analysts rather

than broader publics disproportionately affected by environmental degradation. Consequently, sustainability reporting may reproduce existing power asymmetries by privileging corporate and financial interests over democratic participation and ecological justice concerns.

Ultimately, the critical implications of net-zero reporting extend far beyond technical questions of emissions measurement and disclosure quality. Contemporary sustainability accounting systems shape how climate change is understood, governed, and responded to within global capitalism. While net-zero reporting may enhance visibility around environmental issues, it may simultaneously reinforce market-oriented governance structures, legitimize continued corporate expansion, and obscure deeper structural drivers of ecological crisis. From a critical accounting perspective, meaningful climate accountability therefore requires not only improved reporting practices but also broader transformations in economic systems, governance structures, and societal understandings of value, responsibility, and sustainability.

7. Regulatory and Governance Responses

The rapid expansion of corporate net-zero commitments and sustainability disclosures has generated increasing concerns regarding greenwashing, disclosure reliability, and the effectiveness of voluntary climate accountability mechanisms. In response, regulators, standard setters, international organizations, and policy-makers across the world have begun developing new governance frameworks aimed at strengthening climate-related disclosures, enhancing sustainability assurance practices, and limiting misleading environmental claims (Farooq & Muhammad, 2025). These emerging regulatory and governance responses reflect growing recognition that voluntary sustainability reporting alone may be insufficient to ensure meaningful corporate accountability for climate impacts (Adams & Abhayawansa, 2022). Consequently, the contemporary regulatory landscape increasingly emphasizes standardization, comparability, transparency, and enforceability within sustainability accounting and reporting systems.

One of the most significant developments in this regard is the growing movement toward mandatory climate-related disclosures. Historically, sustainability reporting largely operated within voluntary disclosure regimes, allowing corporations considerable discretion regarding what environmental information they disclosed and how such information was presented (Gray, 2010). However, mounting evidence of selective reporting, inconsistent methodologies, and symbolic sustainability narratives has intensified calls for mandatory disclosure requirements capable of improving accountability and reducing greenwashing practices.

Mandatory climate disclosure frameworks aim to ensure that corporations systematically report material climate-related risks, greenhouse gas emissions, transition plans, and sustainability performance indicators in standardized formats. Such requirements seek to enhance the comparability and reliability of climate information available to investors, regulators, and broader stakeholders. Increas-

ingly, policymakers argue that climate risks constitute financially material issues that should be integrated into mainstream corporate reporting systems rather than treated as optional sustainability disclosures (Eccles & Klimenko, 2019).

A major milestone in the institutionalization of mandatory sustainability reporting is the development of the International Sustainability Standards Board under the oversight of the IFRS Foundation. The ISSB was established to develop globally consistent sustainability disclosure standards designed to improve transparency and comparability in sustainability reporting. In 2023, the ISSB issued its first IFRS Sustainability Disclosure Standards, including IFRS S1 on general sustainability-related disclosures and IFRS S2 on climate-related disclosures (Zaid & Issa, 2023). These standards seek to integrate sustainability reporting into broader financial reporting systems by requiring organizations to disclose climate risks, governance arrangements, emissions data, and transition strategies relevant to enterprise value creation.

The emergence of IFRS Sustainability Standards represents an important shift toward formalizing sustainability reporting within global accounting governance structures. By embedding climate-related disclosures within standardized reporting frameworks, regulators and standard setters aim to reduce reporting inconsistencies and improve stakeholder confidence in sustainability information. Nevertheless, critical scholars caution that the IFRS framework remains heavily oriented toward investor-focused materiality and financial market concerns, potentially limiting broader forms of ecological and social accountability (Flower, 2015). Thus, while standardization may strengthen disclosure consistency, questions remain regarding whether such frameworks sufficiently address the deeper structural drivers of environmental degradation.

The European Commission has also emerged as a leading actor in sustainability reporting reform through the introduction of the Corporate Sustainability Reporting Directive (CSRD) (Odobaša & Marošević, 2023). The CSRD significantly expands corporate sustainability disclosure requirements across the European Union by mandating detailed reporting on environmental, social, and governance issues, including climate change, biodiversity, human rights, and sustainability risks (Official Journal of the European Union, 2022). Unlike many previous voluntary reporting frameworks, the CSRD introduces legally enforceable disclosure obligations and requires sustainability information to be subject to independent assurance processes.

A particularly important innovation within the CSRD framework is its emphasis on “double materiality”. Under this approach, corporations are required not only to disclose how sustainability issues affect financial performance but also how organizational activities impact society and the environment (Dragomir et al., 2025). This broader conception of accountability reflects growing recognition that sustainability reporting should extend beyond narrow investor interests to encompass wider ecological and social consequences (Adams, 2023). The CSRD therefore represents a potentially significant departure from purely market-cen-

tered sustainability governance approaches.

In the United States, the U.S. Securities and Exchange Commission has similarly advanced proposals aimed at strengthening climate-related disclosure requirements for publicly listed companies (Chumley, 2020). The SEC's climate disclosure proposals seek to require firms to disclose climate-related risks, governance structures, emissions data, and transition strategies within annual financial filings (Condon et al., 2020). The proposals also emphasize the disclosure of Scope 1 and Scope 2 emissions, with Scope 3 disclosures required under certain materiality conditions. These reforms reflect growing regulatory recognition that climate-related information is increasingly relevant to investment decision-making and financial market stability.

However, the SEC proposals have also generated substantial political and corporate resistance. Critics argue that mandatory climate disclosures may impose significant compliance costs, create legal uncertainties, and expand corporate reporting burdens (Georgiev, 2022). Others contend that the proposals remain insufficiently ambitious because they continue to prioritize financial materiality over broader ecological accountability. The debates surrounding SEC climate disclosure reforms therefore illustrate the contested political terrain of sustainability governance and the tensions between market-oriented regulation and transformative environmental accountability.

Alongside disclosure reforms, growing attention has also been directed toward sustainability assurance standards and the credibility of climate-related reporting. As sustainability disclosures become increasingly institutionalized, stakeholders have demanded greater verification of emissions data, net-zero claims, and ESG performance metrics. In response, standard setters and professional accounting bodies have begun developing assurance frameworks aimed at improving the reliability and integrity of sustainability information (O'Dwyer, Owen, & Unerman, 2011).

The role of assurance providers, including major accounting firms such as Deloitte, PwC, KPMG, and EY, has expanded significantly within the sustainability reporting landscape (Alsaahli & Malagueño, 2022). These firms increasingly offer climate assurance, ESG verification, and sustainability consulting services designed to strengthen stakeholder trust in corporate disclosures. Regulatory reforms such as the CSRD now require external assurance of sustainability reports, thereby elevating the role of assurance within corporate climate accountability systems.

Nevertheless, critical concerns remain regarding the effectiveness and independence of sustainability assurance practices. Sustainability assurance standards remain less mature and less standardized than conventional financial auditing frameworks, resulting in methodological inconsistencies and varying levels of assurance quality (Boiral & Heras-Saizarbitoria, 2020). Furthermore, potential conflicts of interest persist because many accounting firms simultaneously provide both assurance and consulting services to the same corporate clients. Conse-

quently, critics question whether sustainability assurance genuinely enhances accountability or merely legitimizes corporate sustainability narratives.

In addition to disclosure and assurance reforms, governments and regulatory authorities are increasingly introducing anti-greenwashing regulations designed to combat misleading environmental claims and deceptive sustainability marketing practices. Greenwashing concerns have intensified as corporations increasingly use sustainability language, net-zero commitments, and ESG branding in advertising campaigns, investor communications, and public relations strategies (Delmas & Burbano, 2011). Regulators therefore seek to ensure that environmental claims are accurate, verifiable, and supported by credible evidence.

The European Union has taken significant steps in this area through initiatives targeting misleading environmental marketing and unsubstantiated sustainability claims. Proposed regulations such as the Green Claims Directive aim to require firms to substantiate environmental claims using scientifically verified methodologies and transparent evidence (Marcatajo, 2023). These reforms seek to protect consumers and investors from deceptive sustainability narratives while strengthening confidence in environmental disclosures.

Similarly, financial regulators in several jurisdictions have increased scrutiny of ESG investment products and sustainability-labeled financial instruments. Regulatory authorities increasingly recognize that misleading ESG claims may distort investment decisions and undermine trust in sustainable finance markets (Smoleńska & Levi-Faur, 2025). Consequently, anti-greenwashing enforcement has become an emerging priority within contemporary financial governance systems.

Another important governance response to corporate greenwashing involves the growing rise of climate litigation. Climate-related legal actions against corporations, governments, and financial institutions have increased substantially in recent years as stakeholders seek stronger accountability for environmental harms and misleading climate claims (Setzer & Higham, 2022). Climate litigation now represents an important mechanism through which civil society organizations, investors, consumers, and affected communities challenge corporate climate practices and sustainability disclosures.

Climate litigation cases increasingly target alleged inconsistencies between corporate net-zero commitments and actual operational practices (Esty & de Arriba-Sellier, 2023). Firms accused of misleading investors or consumers regarding climate performance may face legal challenges related to false advertising, securities fraud, or breaches of fiduciary duties (Williams, 2021). Litigation therefore introduces new forms of legal accountability capable of exposing discrepancies between sustainability rhetoric and substantive environmental performance.

Moreover, climate litigation reflects broader shifts toward recognizing climate change as a matter of legal responsibility and human rights accountability rather than merely voluntary corporate responsibility (Savaresi & Auz, 2019). Legal actions increasingly challenge corporations not only for emissions contributions but

also for inadequate climate transition planning, failure to disclose climate risks, and greenwashing practices. Consequently, climate litigation has emerged as a potentially powerful mechanism for strengthening corporate accountability beyond traditional voluntary reporting systems (Vaghela, 2024).

The United Nations has also played a significant role in shaping global sustainability governance and promoting climate accountability initiatives (Bernstein, 2017). Through frameworks such as the Sustainable Development Goals (SDGs), the Paris Agreement, and various climate governance initiatives, the United Nations has encouraged governments and corporations to adopt more transparent and accountable sustainability practices (United Nations General Assembly, 2015). The UN has repeatedly emphasized the importance of credible net-zero commitments, warning against the risks of greenwashing and calling for stronger accountability mechanisms capable of ensuring substantive climate action (Verbruggen, 2026).

Integrated reporting reforms further reflect attempts to strengthen connections between financial performance, sustainability governance, and long-term value creation (Stubbs & Higgins, 2018). Integrated reporting frameworks encourage organizations to disclose how environmental, social, and governance factors interact with financial performance and organizational strategy (Eccles & Krzus, 2018). By integrating sustainability considerations into mainstream corporate reporting, integrated reporting seeks to move beyond fragmented disclosure systems and promote more holistic accountability approaches.

However, critical scholars caution that integrated reporting reforms may still remain constrained by dominant financial logics and shareholder-oriented governance structures. While integrated reporting broadens the scope of corporate disclosures, it often continues to prioritize enterprise value creation and investor materiality rather than ecological sustainability or social justice concerns (Flower, 2015). Consequently, integrated reporting may improve transparency without fundamentally transforming the economic assumptions underpinning corporate environmental practices.

8. Reimagining Accounting for Ecological Accountability

The limitations and contradictions associated with contemporary net-zero reporting and sustainability disclosures underscore the urgent need to fundamentally rethink the role of accounting in society. Critical accounting scholars increasingly argue that existing accounting systems remain deeply embedded within shareholder capitalism and neoliberal economic structures that prioritize financial growth, capital accumulation, and market efficiency over ecological sustainability and social justice (Gray, 2010; Bebbington & Larrinaga, 2014). Consequently, sustainability accounting reforms that merely extend conventional reporting frameworks without challenging underlying assumptions regarding value, accountability, and organizational purpose are unlikely to adequately address contemporary environmental crises. Reimagining accounting for ecological accountability there-

fore requires transformative approaches capable of moving beyond narrow financial logics toward more holistic, democratic, and justice-oriented models of accountability.

One of the central challenges confronting contemporary accounting lies in its historical alignment with shareholder capitalism. Conventional accounting systems were primarily developed to facilitate industrial expansion, investor decision-making, and shareholder wealth maximization (Zimmerman, 2015). Corporate reporting frameworks therefore privilege financial profitability, market valuation, and economic growth as dominant indicators of organizational success (Abeysekera, 2022). Within this model, environmental and social concerns are often considered secondary unless they materially affect financial performance or investor returns.

However, the accelerating climate crisis, biodiversity loss, and widening social inequalities increasingly expose the inadequacy of shareholder-centered governance models. Critical scholars argue that accounting cannot remain confined to serving the informational needs of investors and financial markets while ignoring broader ecological and societal consequences of corporate activity (Dechow, 2023). A transformative sustainability agenda therefore requires moving beyond shareholder capitalism toward governance systems that recognize corporations as socially embedded institutions with responsibilities extending beyond capital providers to wider communities, ecosystems, and future generations (Dias et al., 2026).

This reorientation creates important space for the development of ecological accounting approaches. Ecological accounting seeks to integrate environmental limits, ecosystem interdependence, and sustainability principles into accounting systems and organizational decision-making processes (Varma, Mancini, & Kaushik, 2024). Unlike traditional accounting, which primarily measures economic transactions and financial outcomes, ecological accounting attempts to recognize the material realities of environmental degradation, resource depletion, carbon emissions, and ecosystem destruction.

Ecological accounting challenges the anthropocentric and growth-oriented assumptions underpinning conventional accounting models by emphasizing that economic systems are ultimately dependent upon ecological systems for survival and continuity. From this perspective, sustainability cannot be reduced merely to maintaining economic growth while minimizing environmental harm; rather, it requires recognizing planetary boundaries and ecological limits to production and consumption (Hickel, 2019). Consequently, ecological accounting seeks to develop accounting practices capable of reflecting environmental interdependencies, long-term ecological consequences, and the intrinsic value of natural systems beyond their market price.

Such approaches also require broadening the conceptualization of organizational accountability. Traditional accounting systems largely operate within financial and legal accountability frameworks focused on shareholders, regulators, and

creditors. However, ecological accountability demands recognition that corporate actions affect diverse stakeholders, including workers, local communities, indigenous populations, non-human species, and future generations (Bebbington, Brown, & Frame, 2007). This broader conception of accountability therefore necessitates multi-stakeholder accountability models capable of incorporating diverse voices, interests, and forms of knowledge into sustainability governance processes.

Multi-stakeholder accountability models challenge hierarchical and market-centered governance structures by emphasizing participation, dialogue, and democratic engagement within sustainability reporting and decision-making processes. Rather than treating sustainability disclosures primarily as investor communication tools, these models encourage organizations to engage more substantively with affected communities, civil society organizations, environmental advocates, and marginalized groups disproportionately impacted by environmental degradation (Owen, Swift, Humphrey, & Bowerman, 2000). Such engagement can help strengthen transparency, legitimacy, and responsiveness within sustainability governance systems while reducing opportunities for symbolic reporting and greenwashing.

Importantly, reimagining accounting for ecological accountability also requires integrating principles of social and environmental justice into sustainability reporting frameworks. Climate change and ecological degradation do not affect all populations equally; vulnerable communities, particularly in developing countries, often bear disproportionate environmental burdens despite contributing least to global emissions (Schlosberg, 2007). Consequently, sustainability accounting must move beyond technocratic carbon measurement toward more critical analyses of inequality, power relations, and distributive justice.

From a critical perspective, environmental accountability cannot be separated from broader struggles concerning labor exploitation, resource extraction, colonial legacies, and global economic inequality. Net-zero reporting frameworks that focus narrowly on emissions reductions while ignoring social justice implications risk reproducing existing structural inequalities and legitimizing unsustainable development pathways (Topcheva, 2023). Therefore, genuinely transformative sustainability accounting must address not only environmental performance but also issues such as human rights, environmental racism, indigenous sovereignty, and equitable access to ecological resources.

The pursuit of genuine sustainability accountability further requires stronger ethical orientations within accounting education and professional practice. Historically, accounting education has often emphasized technical competence, regulatory compliance, and financial efficiency while giving limited attention to ethics, critical thinking, and social responsibility (Hoque et al., 2024). However, the complexity of contemporary climate crises demands accounting professionals capable of critically evaluating the ethical implications of corporate reporting practices, sustainability claims, and environmental governance systems.

Critical sustainability education in accounting can therefore play a crucial role in reshaping the future direction of the discipline. Such educational approaches encourage students and practitioners to question taken-for-granted assumptions regarding profit maximization, economic growth, and market rationality while fostering greater awareness of the social, political, and ecological consequences of accounting practices (Sarika et al., 2023). By incorporating critical theory, environmental ethics, sustainability governance, and ecological economics into accounting curricula, educational institutions can help cultivate professionals better equipped to address contemporary sustainability challenges.

Moreover, sustainability education should encourage reflexivity and ethical judgment rather than merely technical compliance with reporting standards (Allen et al., 2019). Accounting professionals increasingly operate within contexts characterized by ambiguity, competing stakeholder interests, and complex sustainability trade-offs. Consequently, developing capacities for critical reflection, ethical reasoning, and democratic engagement becomes essential for advancing meaningful ecological accountability (Shutaleva, 2023).

Reimagining accounting also requires redefining societal understandings of value beyond narrow measures of profit and economic growth. Conventional accounting systems prioritize quantifiable financial indicators such as earnings, shareholder returns, and GDP growth while marginalizing social well-being, ecological integrity, and community resilience (Stiglitz, Sen, & Fitoussi, 2009). However, climate crises increasingly reveal the limitations of growth-centered economic models that externalize environmental costs and prioritize short-term financial gains over long-term sustainability.

Broader measures of value are therefore necessary to support more sustainable and equitable forms of governance (Abhayawansa, Adams, & Neesham, 2021). Such measures may include indicators relating to ecological health, biodiversity preservation, social inclusion, public well-being, and intergenerational equity. Integrating these dimensions into accounting and reporting systems can help shift organizational priorities away from purely financial performance toward more holistic understandings of sustainable value creation.

Public-interest-focused sustainability reporting also represents an important dimension of transformative accounting reform (Michelon, Sealy, & Trojanowski, 2020). Rather than serving primarily as tools for investor decision-making and corporate reputation management, sustainability reports should function as mechanisms for democratic accountability and public transparency. This requires stronger regulatory oversight, more participatory governance structures, and greater emphasis on substantive environmental performance rather than symbolic disclosure practices.

Ultimately, reimagining accounting for ecological accountability involves recognizing that accounting is not a neutral technical exercise but a socially constructed practice that shapes organizational behavior, societal priorities, and environmental governance outcomes (Carton et al., 2021). Accounting systems in-

fluence what organizations measure, value, disclose, and prioritize. Consequently, transforming accounting practices is central to broader efforts aimed at addressing climate change, promoting social justice, and advancing sustainable futures (Twyford et al., 2024).

9. Conclusion

This paper has critically examined the relationship between net-zero reporting and corporate greenwashing within contemporary sustainability accounting practices. In direct response to the central research question, the reviewed literature suggests that net-zero disclosure is more likely to strengthen substantive climate accountability when commitments contain credible interim targets, comprehensive material emissions boundaries including Scope 3, priority to absolute emissions reductions, restrained and transparent use of offsets, and meaningful external verification and enforcement. Where these conditions are absent, disclosure is more likely to operate as a symbolic legitimacy device, particularly when distant aspirations, selective metrics or offset dependence allow underlying carbon-intensive activities to remain largely unchanged.

The synthesis further indicates that net-zero reporting can facilitate greenwashing when sustainability disclosures are used strategically to manage stakeholder perceptions, maintain legitimacy and protect corporate image without commensurate changes in environmentally harmful business models. The literature reviewed in this paper associates symbolic climate commitments, selective emissions reporting, weak assurance and the commercialization of ESG disclosures with accountability deficits in climate governance. These patterns support the argument that sustainability reporting may function as impression management when disclosure quality is not matched by verifiable real-economy decarbonization.

The paper further highlights the importance of critical accounting perspectives for interpreting the political, social and ideological dimensions of sustainability reporting. Rather than demonstrating a universal empirical condition, critical accounting provides a lens for examining how accounting practices are intertwined with power relations, accumulation processes and governance systems. Political economy and stakeholder perspectives similarly direct attention to who defines materiality, whose interests are prioritized and which ecological consequences remain outside investor-centred reporting boundaries.

Moreover, the analysis illustrates that conventional accounting systems remain fundamentally limited in their ability to adequately capture ecological destruction, environmental interdependence, and long-term sustainability challenges. Traditional profit-centered reporting models frequently externalize environmental costs and privilege financial materiality over substantive ecological accountability. Consequently, sustainability reporting reforms that fail to challenge the underlying assumptions of shareholder capitalism and growth-oriented governance are unlikely to produce meaningful environmental transformation.

The reviewed literature also indicates that emerging regulatory and governance responses, including mandatory climate disclosures, sustainability assurance standards, anti-greenwashing rules and climate litigation, can strengthen corporate accountability. Their effectiveness, however, depends on the scope of mandatory reporting, the treatment of Scope 3 emissions and offsets, assurance quality, enforcement capacity and the extent to which accountability extends beyond investor-focused financial materiality. Improving sustainability reporting therefore requires not only stronger technical standards but also governance arrangements capable of constraining opportunistic reporting choices.

Ultimately, this paper argues for a fundamental reorientation of accounting toward ecological sustainability, democratic accountability, and social justice. Reimagining accounting for ecological accountability requires moving beyond narrow shareholder-centered models toward broader multi-stakeholder approaches that recognize the interconnectedness of economic activity, environmental systems, and societal well-being. It also requires stronger ethical commitments within accounting education and professional practice, greater public-interest orientation in sustainability reporting, and the development of broader measures of value that extend beyond profit maximization and financial growth.

The growing climate crisis demands stronger accountability mechanisms capable of addressing the gap between corporate climate promises and actual environmental performance. Greater transparency, enforceable reporting standards, and independent verification processes are essential for reducing greenwashing and enhancing the credibility of sustainability disclosures. More importantly, accounting systems themselves must evolve from instruments primarily serving capital accumulation toward frameworks capable of supporting ecological resilience, social equity, and long-term sustainability.

In this context, the future relevance of accounting depends on its capacity to contribute meaningfully to ecological transformation rather than merely legitimizing existing systems of unsustainable production and consumption. Accounting scholars, regulators, educators, practitioners, and policymakers therefore have a critical responsibility to advance reporting frameworks and governance structures that genuinely serve the public interest, promote environmental justice, and support the collective pursuit of sustainable and equitable futures.

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Asamoah Boye and Michaela Selasi Genego; methodology, Fredrick Asare-Appiah; formal analysis, Fredrick Asare-Appiah; investigation, Fredrick Asare-Appiah; resources, Fredrick Asare-Appiah, Cornelius Adorm-Takyi, Emmanuel Asamoah Boye and Michaela Selasi Genego; writing—original draft preparation, Fredrick Asare-Appiah; writing—review and editing, Fredrick Asare-Appiah, Cornelius Adorm-Takyi, Emmanuel Asamoah Boye and Michaela Selasi Genego; visualization, Fredrick Asare-Appiah; validation, Cornelius Adorm-Takyi, Emmanuel Asamoah Boye and Michaela Selasi Genego; supervision, Cornelius Adorm-Takyi and Emmanuel Asamoah Boye; project administration, Fredrick Asare-Appiah. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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