

**BETWEEN ESG DISCOURSE AND ACCOUNTING PRACTICE: DIVERGENCES
IN THE MEASUREMENT OF CARBON CREDITS IN THE BRAZILIAN ENERGY
SECTOR**

**ENTRE O DISCURSO ESG E A PRÁTICA CONTÁBIL: DIVERGÊNCIAS NA
MENSURAÇÃO DE CRÉDITOS DE CARBONO NO SETOR ENERGÉTICO
BRASILEIRO**

**ENTRE EL DISCURSO ESG Y LA PRÁCTICA CONTABLE: DIVERGENCIAS EN
LA MEDICIÓN DE CRÉDITOS DE CARBONO EN EL SECTOR ENERGÉTICO
BRASILEÑO**

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ABSTRACT

The rapid institutionalization of ESG (Environmental, Social and Governance) discourse has reshaped corporate narratives worldwide. *This investigation is justified by the increasing discrepancy between publicly declared climate commitments and the effectiveness of the accounting metrics that should substantiate them, especially in sectors with high socio-environmental materiality.* However, its widespread adoption has been accompanied by critiques pointing to symbolic practices disconnected from effective environmental measurement and accountability. This article investigates the divergences between discourse and practice in the accounting of carbon credits by energy companies listed on Brazil's B3 stock exchange. Using a qualitative and documentary approach, the study analyzed financial statements, explanatory notes and ESG reports from 18 firms in the oil, gas and biofuels sectors. Only four of them (Raízen S.A., Refinaria de Petróleo Riograndense S.A., Ultrapar Participações S.A. and Vibra Energia S.A.) effectively recognize and disclose carbon credits, mostly as intangible assets and regulatory provisions linked to RenovaBio, in partial compliance with OCPC 10, CVM 223/2024 and CTG 10. The findings reveal substantial gaps between ESG commitments and actual accounting transparency, evidencing a pattern of performative ESG and reinforcing greenwashing risks. The article contributes by highlighting governance weaknesses in Brazil's energy sector and discussing the potential and limitations of environmental accounting as an instrument of climate accountability amid global crisis.

Keywords: ESG. Environmental Accounting. Carbon Credits. Governance. Brazil.

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RESUMO

A crescente institucionalização do discurso ESG (Environmental, Social and Governance) consolidou um novo regime narrativo nas corporações contemporâneas. *Justifica-se esta investigação diante da crescente discrepância entre compromissos climáticos declarados e a efetividade das métricas contábeis que deveriam sustentá-los, sobretudo em setores de alta materialidade socioambiental.* Contudo, sua adoção massiva tem sido acompanhada por críticas que apontam a predominância de práticas simbólicas, desconectadas de processos efetivos de mensuração e responsabilização ambiental. Este artigo investiga as divergências entre narrativa e prática no contexto da contabilização dos créditos de carbono por empresas do setor energético brasileiro listadas na B3. A pesquisa, de abordagem qualitativa e documental, analisou demonstrações financeiras, notas explicativas e relatórios ESG de 18 companhias dos segmentos de petróleo, gás e biocombustíveis. Observou-se que apenas quatro delas (Raízen S.A., Refinaria de Petróleo Riograndense S.A., Ultrapar Participações S.A. e Vibra Energia S.A.) reconhecem e divulgam contabilmente seus créditos de carbono, majoritariamente como ativos intangíveis e provisões regulatórias derivadas do RenovaBio, em conformidade parcial com a OCPC 10, CVM 223/2024 e CTG 10. A análise revela discrepâncias significativas entre compromissos ESG declarados e transparência contábil efetiva, caracterizando um padrão de ESG performativo e reforçando riscos de greenwashing. O estudo contribui ao evidenciar fragilidades de governança climática no setor energético brasileiro e discutir os limites e possibilidades da contabilidade ambiental como instrumento de accountability em cenários de crise climática.

Palavras-chave: ESG. Contabilidade Ambiental. Créditos de Carbono. Governança. Brasil.

RESUMEN

La creciente institucionalización del discurso ESG (Environmental, Social and Governance) ha consolidado un nuevo régimen narrativo en las corporaciones contemporáneas. *Esta investigación se justifica debido a la creciente discrepancia entre los compromisos climáticos declarados y la efectividad de las métricas contables que deberían sustentarlos, particularmente en sectores de alta materialidad socioambiental.* Sin embargo, su adopción masiva ha venido acompañada de críticas que señalan la predominancia de prácticas simbólicas, desconectadas de procesos efectivos de medición y de responsabilización ambiental. Este artículo investiga las divergencias entre narrativa y práctica en el contexto de la contabilización de los créditos de carbono por parte de empresas del sector energético brasileño listadas en la B3. La investigación, de enfoque cualitativo y documental, analizó estados financieros, notas explicativas e informes ESG de 18 compañías de los segmentos de petróleo, gas y biocombustibles. Se observó que solo cuatro de ellas (Raízen S.A., Refinaria de Petróleo Riograndense S.A., Ultrapar Participações S.A. y Vibra Energia S.A.) reconocen y divulgan contablemente sus créditos de carbono, en su mayoría como activos intangibles y provisiones regulatorias derivadas del RenovaBio, en conformidad parcial con la OCPC 10, la Resolución CVM 223/2024 y la CTG 10. El análisis revela discrepancias significativas entre los compromisos ESG declarados y la transparencia contable efectiva, caracterizando un patrón de ESG performativo y reforzando riesgos de greenwashing. El estudio contribuye al evidenciar fragilidades en la gobernanza climática del sector energético brasileño y a discutir los límites y posibilidades de la contabilidad ambiental como instrumento de accountability en escenarios de crisis climática.

Palabras clave: ESG. Contabilidad Ambiental. Créditos de Carbono. Gobernanza. Brasil.



1 INTRODUCTION

The global climate agenda has irreversibly reconfigured the expectations of transparency and socio-environmental responsibility on the part of organizations. Based on the reports of the Intergovernmental Panel on Climate Change (IPCC, 2023), the expansion of climate disclosure instruments, understood as the process of structured, transparent, and standardized disclosure of relevant information, especially those related to environmental risks, impacts, and strategies (TCFD, 2017), and the consolidation of international sustainability standards (ISSB/IFRS S1–S2), corporate practices began to be analyzed by multiple based on criteria that go beyond the economic and financial dimension.

In this scenario, accounting is no longer just the "language of business", in the terms of Ludícibus (2021), to become the language of socio-environmental legitimacy, operating as an instrument of mediation between environmental impacts and public accountability. Such a transformation reflects the thesis of Gray, Bebbington and Larrinaga (2009), according to which accounting is simultaneously technical and political, as it organizes symbols, produces narratives and selects what will be visible and invisible in the public sphere.

The ESG discourse has become hegemonic, being adopted by corporations as an indispensable communication strategy to attract investors, access markets, and signal climate compliance (Kotsantonis, Pinney, & Serafeim, 2016). However, Tariq Fancy (2021), former director of sustainability at BlackRock, argues that most ESG practices do not substantially change the environmental behavior of companies, operating as a "financial placebo" that masks the maintenance of destructive economic models.

In Brazil, the energy sector, especially oil, gas and biofuels, occupies a central position in national greenhouse gas (GHG) emissions, having the technical and financial capacity to mitigate impacts, but also strong reputational exposure. The country has recently structured essential regulatory frameworks, such as CVM Resolution 223/2024, CTG 10, and OCPC 10, which finally standardize the accounting treatment of carbon credits. Still, a gap persists between the ESG narrative and effective accounting measurement, indicating low adherence to transparency requirements. The question that guides this article is: How do companies in the Brazilian energy sector measure, record and disclose carbon credits, and what divergences emerge between ESG discourse and accounting practice?

The general objective is to critically analyze the methodologies, evidence, and accounting omissions related to carbon credits in energy companies listed on B3. The specific objectives involve: identifying companies that effectively evidence carbon credits; assess

their adherence to newly established standards; investigate the relationship between ESG discourse and accounting practice; and discuss implications for governance and greenwashing risks.

The relevance of the study lies in the climate urgency, regulatory pressures, and the need for robust accountability mechanisms. Environmental accounting plays a strategic role in making environmental externalities visible, contributing to reducing informational asymmetries and strengthening climate governance.

2 THEORETICAL FRAMEWORK

The theoretical framework that underlies this study articulates contributions from environmental accounting, ESG critical literature, debates on climate governance, and recent discussions about the integrity of carbon markets. These perspectives provide a solid foundation for understanding how measurement, recognition, and disclosure practices relate to institutional pressures, reputational risks, and regulatory frameworks. The main conceptual axes that support the analysis are presented below.

2.1 ENVIRONMENTAL ACCOUNTING AND IMPACT VISIBILITY

Environmental accounting emerges as an attempt to incorporate information into accounting systems that, for long periods, have been treated as invisible externalities. Gray, Owen and Adams (2014) observe that traditional financial accounting tends to prioritize monetary indicators, relegating relevant socio-environmental impacts to the background and thus contributing to the maintenance of unsustainable economic structures.

This limitation is partially mitigated by the expansion of environmental accounting, which, according to Ribeiro (2021), expands the ability of organizations to measure environmental costs, investments, liabilities, and revenues, offering instruments capable of making their interactions with the environment more transparent. Along these lines, Tinoco and Kraemer (2011) emphasize the need for rigor in the recognition of environmental obligations. The authors state that,

With reference to the recording, recognition and disclosure of environmental provisions in the financial statements, it should be mentioned that the vast majority of legislation [...] only allow the corresponding recording when compensation resulting from damage caused to the environment is paid, or when there is strong evidence of damage that will have to be compensated or indemnified (Tinoco; Kraemer, 2011, p. 145).

Such a perspective highlights the mismatch between the social demand for transparency and the normative requirements for accounting recognition, making it difficult to timely socio-environmental information. The consolidation of instruments such as Integrated Reporting, TCFD and the new IFRS S1/S2 standards reinforces the global trend of integrating financial and non-financial performance, expanding the importance of social and environmental disclosure as a governance instrument.

2.2 ESG, CLIMATE GOVERNANCE AND THE CRITIQUE OF THE PERFORMATIVE

The rise of ESG has consolidated a global language of corporate governance, incorporated by companies, investors, and multilateral organizations. Kotsantonis, Pinney, and Serafeim (2016) highlight that ESG factors influence long-term performance, affecting risk, return, and cost of capital, which justifies its growing institutionalization.

However, recent literature points out that a large part of these practices are made up of performative mechanisms, more associated with strategic communication than with material changes in the productive structure. Tariq Fancy (2021), a former BlackRock executive, criticizes the superficiality of corporate climate initiatives, stating that they often behave as symbolic instruments that do little to alter emissions-intensive business models.

Larcker and Watts (2020) reinforce this argument by highlighting methodological inconsistencies and the absence of solid metrics for ESG assessment, which increases the margin for arbitrariness. This critique echoes the notion of climate governance presented by Schaltegger and Burritt (2017), for whom measurement, verification, and accountability processes should be integrated into the decision-making process and not just used as reputational tools.

2.3 CARBON MARKET, CBIOS AND INTEGRITY ISSUES

The global carbon market is worth billions of dollars, but faces criticism about its structural integrity, especially in the voluntary market, where problems of additionality, double counting, and methodological fragility are recurrent (ICVCM, 2023).

The *Integrity Council for the Voluntary Carbon Market* (ICVCM) is an independent international body created to establish minimum quality standards in this market. In 2023, the Council published the *Core Carbon Principles* (CCPs), a set of criteria that determines that voluntary credits must represent real, additional, and verifiable reductions or removals of greenhouse gases, ensuring traceability, independent verification, and socio-environmental

safeguards. The ICVCM's work seeks to correct historical failures in the voluntary market, increasing its credibility and mitigating *greenwashing risks*.

In Brazil, RenovaBio is the main regulatory framework for issuing and trading Decarbonization Credits (CBIOs), which are linked to energy efficiency and the carbon intensity of biofuels. Law No. 15,042/2024 and CVM Resolution 223/2024 established mandatory criteria for accounting for these assets, operationalized by OCPC 10 and CTG 10, which classify agents as originators, intermediaries or end users.

Despite regulatory advances, sectoral adoption remains heterogeneous. Companies in the energy sector differ in terms of the level of methodological detail, the internalization of standards, and the degree of maturity in the measurement and disclosure of carbon credits, revealing governance weaknesses and inconsistencies in the quality of *disclosure*.

2.4 BRAZILIAN ENERGY SECTOR: LEGITIMACY, RISK AND SOCIAL PRESSURE

Companies in the energy sector, especially oil companies, occupy a strategic position in greenhouse gas emissions and face growing pressure from regulatory bodies, investors and civil society. Lins (2015) points out that organizations with high environmental impact tend to use socio-environmental communications as legitimization strategies in the face of public questioning. According to the author, "companies with high environmental impact resort to socio-environmental communication as a mechanism of symbolic legitimation in the face of growing external pressures" (Lins, 2015, p. 7).

This process reveals a tension between discourse and practice, especially in Brazil, where energy companies are simultaneously protagonists of climate discussions and as agents with heterogeneous standards of governance and transparency. Thus, they become central elements in the analysis of disclosure quality, reputational risks, environmental performance, and *climate accountability*.

3 METHODOLOGY

The research adopts a qualitative approach, of exploratory nature and critical-interpretative orientation. The documentary method was chosen because it allows the analysis of materials produced by the companies themselves, such as financial statements, explanatory notes, reference forms and ESG reports.

18 companies in the energy sector listed on B3 were examined, covering the oil, gas and biofuels segments. The time frame considered the fiscal years 2023 and 2024, a period



marked by the consolidation of new regulatory frameworks for the accounting of carbon credits in Brazil.

The content analysis was structured in five categories: (i) existence of accounting records of carbon credits or CBIOS; (ii) the account classification adopted; (iii) adherence to applicable rules (OCPC 10, CTG 10 and CVM Resolution 223/2024); (iv) consistency between environmental information disclosed in ESG reports and that evidenced in the financial statements; and (v) evidence of performative ESG or practices potentially characterized as *greenwashing*.

The main limitation of the study stems from the unavailability of the internal assumptions used by companies to measure and value carbon credits, which requires interpretations based only on the *available public* disclosures.

4 RESULTS AND DISCUSSIONS

The analysis of the collected data allowed us to identify patterns, asymmetries and inconsistencies in the way companies in the Brazilian energy sector recognize, measure and disclose carbon credits. The results show a significant mismatch between declared climate commitments and accounting practices effectively adopted, revealing governance weaknesses, *greenwashing* risks, and low regulatory maturity. The main findings of the study are presented below.

4.1 OVERVIEW OF THE 18 COMPANIES ANALYZED

Among the 18 companies analyzed, 14 do not have any accounting records of carbon credits, despite many disclosing climate goals and decarbonization commitments. This discrepancy reinforces Gray's (2006) thesis on "accounting silences", according to which the absence of registration also communicates, and communicates risk, opacity and discursive inconsistency. To summarize this scenario, chart 1 is presented below with the distribution of the results found.

Table 1

Disclosure of Carbon Credits by Companies in the Energy Sector (B3 – 2023/2024)

Category analyzed	Companies (n=18)	Percentage	Observations
Companies that recognize carbon credits	4	22%	Partial registration, with methodological weaknesses.



Companies that do not register at all	14	78%	Strong inconsistency between ESG discourse and accounting practice.
Most Used Account Assignment	Intangible	–	Mainly CBIOS linked to RenovaBio.
Full adherence to standards (OCPC 10, CTG 10, CVM 223/2024)	0	0%	No company fully meets all the requirements.
Inconsistencies between ESG and DF reporting	7	39%	Gaps between narratives and accounting evidence.
Evidence of performative ESG/greenwashing	12	67%	Companies declare commitments, but do not record environmental credits, liabilities or provisions.

Source: Prepared by the authors (2025).

The table reinforces that the absence of accounting recognition is the dominant pattern, and not the exception. Such a scenario suggests low integration between disclosed climate strategies and the formal systems of measurement, registration and *disclosure*.

4.2 THE FOUR COMPANIES THAT REGISTER CARBON CREDITS

Of the 18 companies analyzed, only four recognize carbon credits in their statements. The **Raízen S.A.** has the most consistent disclosure, with registration of CBIOS as intangible assets and provisions associated with RenovaBio. The **Riograndense Refinery** acknowledges credits, but with excessively synthetic explanatory notes, which compromises the verifiability of the information. The **Ultrapar** it highlights climate credits and obligations, but presents inconsistencies between the ESG report and the financial statements. The **Vibra Energy** partially complies with the applicable standards, but does not detail the criteria used for measurement or the assumptions of fair value (*Fair value*), defined by IAS 46/IFRS 13 as the price that would be received for the sale of an asset or paid for the transfer of a liability in an orderly transaction between market participants. The absence of this information compromises transparency and prevents the evaluation of the adequacy of the measurement carried out. Even among the companies that perform accounting records, methodological weaknesses and low standardization are observed.

4.3 DIVERGENCES BETWEEN DISCOURSE AND PRACTICE: PERFORMATIVE ESG

The most evident contradiction emerges when companies affirm climate neutrality, emission reduction targets, and broad commitments, but do not record environmental credits, provisions, or liabilities. Such a scenario is close to the concept of **performative ESG**, in which institutional communication becomes more relevant than materially implemented practices. Chart 2 is presented below with a comparison that summarizes these divergences.

Table 2

Main Divergences between ESG Discourse and Accounting Practice (Energy Sector - B3)

Dimension	Evidence in the ESG discourse	Evidence in Financial Statements	Interpretation
Climate neutrality	Widely stated <i>net-zero</i> targets	Absence of accruals and recorded credits	Risk of <i>greenwashing</i>
Reducing emissions	Strategic plans and public commitments	There is no auditable measurement methodology	Performative ESG
Carbon market	Declared voluntary participation	Lack of registration, measurement and fair value	Low accounting maturity
Climate governance	Committees, policies, and comprehensive reporting	Inconsistency between DF and ESG reporting	Governance integration failures
Transparency	Extensive annual reports	Significant accounting gaps	Informational asymmetry

Source: Prepared by the authors (2025).

4.4 IMPLICATIONS FOR GOVERNANCE, RISK AND PUBLIC POLICIES

The *identified disclosure* gaps compromise:

- a) comparability between companies;
- b) the efficient functioning of the regulated carbon market;
- c) the reliability of climate risk analyses;
- d) the verification of future environmental obligations;
- e) the integrity of neutrality commitments;
- f) the relationship of transparency with stakeholders.

The energy sector, given its strategic position in the national emissions inventory, should lead the adoption of consistent accounting measurement and climate disclosure practices. However, the results point to regulatory delay, low standardization, and weaknesses in climate governance.

5 CONCLUSION

The analysis shows that the ESG narrative in the Brazilian energy sector remains far from effectively consistent accounting practices. Among the 18 companies analyzed, only four recognize carbon credits in their statements, and even these have methodological limitations, insufficient detail, and absence of clear measurement assumptions. The scenario confirms the persistence of accounting silences, informational opacities, and evident tensions between discourse and practice, configuring an environment conducive to performative ESG and the risk of structural *greenwashing*.

The regulatory progress represented by CVM Resolution 223/2024, CTG 10 and OCPC 10 is an important milestone, but still insufficient to consolidate robust standards for climate measurement and disclosure. Without effective enforcement, compulsory standardization, methodological transparency, and integration between corporate governance and environmental accounting, a superficial adoption of ESG tends to prevail, used as a reputational tool rather than as an instrument of social and environmental accountability (*accountability*).

The contributions of this study focus on demonstrating:

- (i) the gaps in environmental disclosure in the energy sector;
- (ii) the inconsistencies between ESG narratives and accounting records;
- (iii) the need to improve the practices of measurement and recognition of carbon credits;
- (iv) the urgency of more coercive public policies and regulations to avoid arbitrariness and informational asymmetries.

Future research can deepen longitudinal analyses, assess the financial impacts of climate disclosure, investigate correlations between disclosure and socio-environmental risk, and promote international comparisons that allow us to understand Brazil's position in the face of the best global practices in climate governance.

In summary, strengthening environmental accounting as an instrument of visibility, control, and *accountability* is an indispensable condition for ESG to go beyond the discursive field and achieve effectiveness in the transition to sustainable production models.

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