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# The Evolution of Sustainability Reporting and Challenges of Financial Auditors

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## Abstract

This study examines the evolution of sustainability reporting in the Romanian energy sector, based on the reports of two major operators for the period 2011-2024. A mixed-methodology approach was employed, which included the analysis of lexical frequencies, a comparative evaluation of the structure and content of sustainability reports before and after the COVID-19 pandemic, and a SWOT matrix of the challenges faced by non-financial auditors. The results highlight the transition from voluntary reports, focused on quantitative data and narrative descriptions, to mandatory, integrated reports subject to a formal assurance process, with increased transparency requirements and the implementation of a rigorous methodological framework. The SWOT analysis highlights the disciplinary robustness of traditional financial auditing, as well as the gaps generated by the absence of a common language and insufficient expertise in the field of ESG (environmental, social, and governance), and the potential offered by digitalization and interdisciplinary training programs.

**Key words:** sustainability reporting; Romania; BSE; CSR; EU Taxonomy;

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## Introduction

In recent decades, sustainability reporting has evolved from a voluntary initiative to a fundamental requirement in business, radically transforming the way companies operate and are evaluated. Dramatic climate change, pressures for transparency, and stringent European regulations demonstrate that performance in the areas of ESG (environmental, social, and governance) is no longer an optional add-on, but an essential condition for market survival. In this context, investors and consumers prefer companies that integrate responsibility into the core of their business activities, not just in periodic reports. Organizations that understand and act in accordance with this reality will define the future of the economy (Mititean & Sârmaş, 2023).

The implementation of the Corporate Sustainability Reporting Directive (CSRD) marks a turning point in this transformation process, fundamentally changing the way companies report sustainability practices. For the first time, this directive extends reporting obligations from large corporations to small and medium-sized enterprises that meet specific revenue criteria or employee numbers, thereby transforming the sustainability information landscape and intensifying pressure for transparency in the corporate environment (Cojocaru & Onofrei, 2024).

The new CSRD obligations generate two significant changes in reporting practices: increasing the frequency of reports and improving their quality. Companies are obliged to align their practices with new standards and provide regularly updated information as environmental and social objectives become mandatory. At the same time, organizations need to develop more complex systems for identifying and managing sustainability-related risks. These detailed reports not only comply with legal requirements but also help organizations to identify and prevent hazards that could impact their reputation and financial stability.

All these transformations create challenges for financial auditors. Sustainability information differs significantly from traditional financial data: it is often descriptive rather than numerical, refers to plans, and comes from a variety of sources. Therefore, auditors are required to develop new skills, such as analyzing ESG data, knowing sustainability standards, and assessing non-financial risks.

The complexity of these challenges is amplified by the absence of uniform rules worldwide, which complicate the

assessment of companies' ESG performance. The coexistence of several standards and reporting frameworks – the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), and the Task Force on Climate-related Financial Disclosures (TCFD) – creates confusion and produces inconsistent results in sustainability auditing.

In this legislative context, a robust assurance mechanism is essential to confirm the credibility of non-financial information. ISAE 3000 responds to this requirement by extending the recognized auditing principles in the area of sustainability, providing auditors with a detailed methodological framework. By clearly defining "relevant criteria", the standard offers a conceptual foundation for assessing ESG indicators in accordance with the CSRD. In addition, the adaptation of procedures for obtaining evidence – from testing internal controls to advanced analytical techniques – reflects the evolution of audit practices in response to the complexity of non-financial data, thereby ensuring a rigorous and credible verification of sustainability reporting.

At the same time, the literature often presents a fragmented approach, analysing either legislative aspects or practical challenges, but rarely integrating them into a coherent vision. The present study addresses this gap by examining the regulatory changes introduced by the CSRD, the application of ISAE 3000, and the operational challenges faced by financial auditors in their daily practice. Thus, the article pursues four main objectives, namely:

**I. The historical and legislative evolution, respectively, of the impact of the pandemic on sustainability reporting.** Identifying the significant milestones and key events – including the effects of the COVID-19 pandemic – that have transformed sustainability reporting is essential to understanding the current context in which companies operate.

**II. Conceptual clarification.** Another objective of the study is to clarify the concept of sustainability reporting and to identify its differences from traditional financial practices. First, the idea of "materiality" establishes what information truly matters to stakeholders, encompassing the Triple Bottom Line concept, which extends the area of analysis beyond profit to include social and environmental impact. Unlike traditional financial reports, which focus exclusively on economic figures, sustainability reports include a diverse range of non-financial indicators. In

support of these concepts, accounting theories about stakeholders and legitimacy provide the necessary theoretical foundation, explaining why and how companies must respond to the demands of a world that no longer accepts only growing figures.

**III. The impact of regulations.** The study conducts a systematic analysis of sustainability reports in the energy sector, comparing pre- and post-pandemic documents according to the way the content is structured, the standards applied (mandatory requirements NFRD - "Non-Financial Reporting Directive" / CSRD versus voluntary frameworks GRI, SASB, TCFD), the annual evolution of the reported information, the assurance measures according to ISAE 3000, and the selection of key ESG indicators. Within this framework, the typologies of regulations that served as the basis for the elaboration of each report are identified, and their impact on the frequency and detail of reporting, as well as on the consistency and comparability of environmental, social, and governance performance throughout the analyzed period, is assessed.

**IV. Auditors' challenges.** A fundamental aspect of this research is the systematic mapping of the challenges that auditors encounter. They face complex areas that go beyond traditional technical limits: the mixed and often qualitative nature of ESG data, the absence of standardized verification protocols, and the inadequacy of existing audit tools for assessing forward-looking and narrative information. ISAE 3000 provides auditors with a set of requirements and guidelines – from the acceptance of the commitment to the drafting of the report – essential for validating non-financial data, but adapting them to the specifics of ESG remains a complex process.

Starting from the four mentioned objectives, we propose the following research questions:

- RQ1.** What were the key milestones that reshaped sustainability reporting in the EU, and what events accelerated them?
- RQ2.** How has the structure and content of sustainability reports evolved from the first voluntary frameworks to the implementation of CSRD requirements, and what is the impact of the adoption of ISAE 3000 in assurance engagements on ESG indicators?
- RQ3.** What are the main difficulties that auditors face in verifying sustainability reporting data, and what new skills do they need to develop to integrate non-financial and financial auditing?

The article aims to track the evolution of sustainability reporting standards by examining their practical application in annual reports, to identify the strengths, weaknesses, challenges, and opportunities associated with the non-financial audit process, and to provide a clear framework for guiding future academic research within the current regulatory context. Through this approach, the study not only describes regulatory changes but also builds an analytical tool meant to guide the design of audit strategies and methodologies that respond to the increasingly stringent requirements of transparency and corporate responsibility.

## 1. Literature

The evolution of the sustainability reporting literature reflects a gradual transformation from voluntary and exploratory approaches to standardisation and quality assurance of ESG information. This shift illustrates the progressive maturation of corporate practices globally.

Early studies (Belkaoui & Karpik, 1989; Brown & Fraser, 2006; Kolk, 2008; Spence, 2009) focused on understanding the reasons behind voluntary corporate social responsibility (CSR) reporting. Using qualitative methods and surveys, the researchers analyzed managerial behavior through the lens of organizational legitimacy theory. Subsequently, works such as those by Secchi (2006) and Brammer & Pavelin (2008) have highlighted factors such as firm size, public visibility, and capital market pressure as key determinants of corporate transparency.

With the increasing importance of ESG, the literature has shifted its focus to technical aspects, such as auditing and verifying non-financial information. Simnett (2012) analyzed the application of the ISAE 3000 standard in the field of ESG, while Hahn & Kühnen (2013) emphasized the need for mandatory regulations. This period marked a fundamental recognition of the limits of the voluntary approach: sustainability reporting could no longer be conceived exclusively as a tool for corporate communication or public legitimization, but had to evolve towards a transparent mechanism, characterized by the same methodological rigor, procedural consistency, and institutional credibility that defined the consolidated standards of financial reporting. This conceptual transformation has involved recognizing that ESG information has material relevance comparable to economic data for the decision-making processes of

investors, creditors, and other stakeholders, thereby requiring the implementation of verification and validation protocols that guarantee the accuracy, completeness, and comparability of the reported data. Thus, the academic and professional community has begun to conceptualize sustainability reporting not as a descriptive appendix to financial information, but as an integral component of the corporate information ecosystem, governed by similar principles of materiality, faithful representation, and verifiability that underpin modern financial accounting. The introduction of the European NFRD directive and later the CSRD has generated studies that analyze the compliance and effectiveness of these frameworks (Cojocaru & Onofrei, 2024). Researchers such as Eccles & Krzus (2018) have explored integrated reporting models, showing how financial and sustainability reports can be combined to provide a holistic view of corporate performance.

Global events such as the COVID-19 pandemic have served as decisive catalysts for accelerating and redefining the ESG reporting landscape, transforming the transparency requirement from a stakeholder preference into an operational necessity. It exposed the deep vulnerabilities of global supply chains. It highlighted the complex interdependencies between health, social, and economic risks, forcing companies to recognize that ESG factors are not manageable externalities, but fundamental determinants of operational continuity. Simultaneously, the intensification of the climate crisis and the implementation of the Task Force on Climate-related Financial Disclosures (TCFD, 2017) recommendations have shaped the understanding that climate risks represent material financial risks, necessitating the integration of climate considerations into strategic planning and corporate reporting processes.

The introduction of the EU Taxonomy (2018-2020) marked a turning point in sustainability reporting: for the first time, detailed scientific criteria were established for classifying economic activities considered "green" and for disclosing climate-related risks. Together with the Sustainable Finance Disclosure Regulation (SFDR), which requires transparency in sustainable investment decisions, they have established a coherent regulatory framework before the CSRD, thereby strengthening a global ecosystem of standards and reporting obligations. Thus, the EU has not only clarified and united ESG terminology but has also created an integrated model that influences corporate practices and serves as a benchmark for other jurisdictions.

While considerable progress has been made in recent years – both in expanding the legislative framework and refining reporting methodologies – key gaps remain that affect the effectiveness and credibility of the entire ESG system. Firstly, non-financial auditing suffers from the absence of uniform protocols and internationally recognised verification standards, which leads to discrepancies in the quality and comparability of reports. Second, the complex nature of ESG data – which combines quantitative and qualitative indicators, historical measurements, and future projections, as well as local and global data – requires the development of specialized audit techniques for each type of information. In the absence of a unified framework, these methodological differences not only undermine the confidence of investors and other users but also hinder the objective assessment of sustainability performance.

Contemporary researchers (Eccles & Krzus, 2018; Cojocaru & Onofrei, 2024) converge in emphasizing the critical need to develop digital and interdisciplinary skills for the practical analysis of non-financial data, recognizing that the ESG information ecosystem extends beyond the capabilities of traditional audit and analysis methodologies. This need is becoming increasingly urgent as the volume and complexity of ESG data grow exponentially, and users of this information develop increasingly sophisticated expectations for the granularity, frequency, and accuracy of reporting.

As ESG standards have evolved from simple voluntary guidelines to complex legal directives, it has become increasingly important to understand how the concepts of materiality and Triple Bottom Line (TBL) differ in practice from the requirements of traditional financial reporting. Stakeholder and legitimacy theories provide a key explanation for this differentiation, highlighting the need for firms not only to present economic figures but also to reflect the social and environmental impact of their business.

The concept of materiality in sustainability reporting extends beyond the traditional limits of financial reporting, which primarily focuses on economic performance and shareholder interests. Materiality refers to the identification and reporting of relevant information that affects not only profitability, but also the social and environmental impact of the company (Pacheco & Calderón, 2017). According to this concept, organizations are encouraged to focus on aspects that are meaningful to all their stakeholders, including employees, customers, and communities, as well as investors.

In contrast to conventional financial reporting, the Triple Bottom Line (TBL) model, proposed by John Elkington in 1994, extends the assessment of organizational performance beyond economic figures to include social and environmental dimensions equally (Bittencourt et al., 2023). By recognising the interdependence between the three pillars – economic, social, and ecological – TBL argues that long-term success depends on their balance, thus providing a much broader reporting framework than mere financial indicators.

To explain why and how this paradigm shift occurred, stakeholder and legitimacy theories come with complementary perspectives. According to stakeholder theory, companies must be responsible and accountable not only to shareholders, but also to all stakeholders – employees, communities, suppliers, and customers. TBL reporting obliges them to include social and environmental aspects that reflect these expectations (Ciornei, 2024). In parallel, legitimacy theory argues that organizations must continuously demonstrate their social and ecological commitment to gain and maintain the trust of the public and other relevant stakeholders; the implementation of reporting practices based on TBL and materiality thus becomes an essential mechanism of social validation (Rocha et al., 2019).

Together, these theoretical frameworks provide the explanation for the transition from a strictly financial reporting to an integrated ESG one: TBL defines "what" needs to be reported, and the stakeholder and legitimacy theories explain "why" and "how" this information becomes indispensable for the credibility and survival of organizations in the current context of sustainability.

ISAE 3000, although formerly of the CSRD, also responds to sustainability requirements by standardizing the assurance process for non-financial data, including those related to environmental, social, and governance criteria (Aly & Badawy, 2024), and its adoption by accounting firms and other assurance providers strengthens the legitimacy of the sustainability insurance market (Gillet-Monjarret, 2018). Key benefits include increasing the credibility of reporting, which supports transparency and accountability of organizations to investors and stakeholders (Aly & Badawy, 2024), reducing the risk of greenwashing through independent verification of environmental and social performance (Abbas & Khatib, 2025; Susilo & Meiden, 2023), and preparing for increasingly stringent future regulations (Nangoy et al., 2024). However, the complexity of the procedures

required by ISAE 3000 can pose a challenge for smaller organizations, and the costs associated with the assurance process – often significant – can be a barrier, especially for entities in emerging markets (Svanberg et al., 2022). Also, the variety of ESG metrics and standards complicates the comparability and uniformity of non-financial audit, highlighting the need for deeper convergence in the future evolution of the sustainability framework (Nangoy et al., 2024).

Even though ISAE 3000 provides a robust framework, auditors face significant difficulties in verifying sustainability reporting, challenges fueled by the lack of uniform protocols and clear reporting standards (Rahman & Putri, 2023), the complexity of ESG metrics, which combine quantitative and qualitative data (Razali et al., 2025), as well as time and budget pressures that can lead to small samples and less robust evidence. In addition, the shortage of specialized skills in many audit firms exacerbates their reluctance to provide non-financial data (Rahman & Putri, 2023; Ilias et al., 2023). To overcome these obstacles and integrate non-financial and financial auditing, auditors need to develop advanced analytical approaches (including Big Data techniques) (Santis & D'Onza, 2021), stay up-to-date with sustainability regulations (CSRD, EU Taxonomy, SFDR) (Rahman & Putri, 2023), add interdisciplinary expertise – combining environment, law and ethics (Ilias et al., 2023) – and improve communication skills to clearly convey audit findings and engage effectively with stakeholders (Steyn, 2020). Only in this way can ESG insurance become truly rigorous, comparable, and practical for investors' decisions and the broader community.

## 2. Research methodology

The methodological design of the present research integrates a mixed quantitative-qualitative strategy, with a focus on systematic documentary analysis, computational processing of textual data, and critical evaluation of the content of sustainability reports. The first dimension of the research aims at the quantitative analysis of the evolution of ESG terminology by evaluating the main terms used in the most critical standards (GRI, NFRD, TCFD, SFDR, EU Taxonomy, CSRD and IFRS S1 - "General requirements for sustainability disclosure" & S2 - "Disclosure of climate risks and opportunities"), linguistically processed in R through tokenization, normalization and elimination of auxiliary words. This stage enabled the highlighting of semantic

transitions from general terminology to specific sustainability terms, such as climate risks or corporate governance.

The second component of the methodology involves analyzing sustainability reports in the energy industry, comparing the structure, content, and standards used for their preparation before and after the COVID-19 pandemic. The analysis covered the period 2011–2024 for OMV and 2016–2024 for Electrica, using the sustainability reports published on the companies' official websites. These two companies were selected due to their representativeness in the energy sector and the longitudinal availability of ESG data (with OMV providing continuous annual reports since 2011, and Electrica starting its reporting in 2016); for direct company comparisons, the common timeframe 2016–2024 was applied. This analysis is conducted using textual conversion with pdftools and tabulizer, as well as thematic analyses from RStudio. Subsequently, we focused on ESG assurance audit reports (limited and reasonable, according to ISAE 3000), examining the structure of the documents to identify consistency in the chapters and the flow of information.

The qualitative dimension of the study involved an analysis of the fundamental challenges faced by ESG auditors, marked by methodological, operational and ethical complexity, and to order and interpret these empirical findings, we created a SWOT matrix adapted to the specifics of sustainability auditing: identifying the strengths that validate the credibility and consistency of the procedures, the weaknesses generated by the lack of standardization and the narrative nature of ESG data, the opportunities offered by regulatory harmonisation and digital innovation in audit tools and the threats posed by rapid regulatory dynamics and sectoral heterogeneity, respectively; thus, through an analytical approach, we have highlighted how each category influences the efficiency and relevance of the ESG assurance process.

### 3. Results and discussions

#### 3.1. Analysis of the main sustainability reporting standards

To analyze the evolution of key concepts in ESG reporting standards, we extracted the original texts in English, available in PDF format on the websites of eminent organizations, converted them to text with pdftools and

tabulizer, and, in RStudio, we used tidytext and quanteda to identify the top 10 most frequently encountered terms in each set of documents, then translated these words into Romanian language (Figure no. 1).

The results obtained show that in the GRI versions, "reporting", "standards" and "information" dominated, signaling the emphasis on the explicit structuring of the report; with the advent of the SASB, words such as "financial", "materiality" and "disclosure" highlight the orientation towards financial relevance and data transparency. The TCFD then frequently introduced 'climate', 'risk', and 'scenario', reflecting the focus on climate risks. Last but not least, from the CSRD analysis, terms such as "sustainability", "governance", and "stakeholders" mark the expansion of the ESG framework towards corporate governance and stakeholder involvement.

We can see that the sustainability reports primarily focused on financial figures and indicators, aiming for quantitative transparency of economic performance rather than reflecting non-financial risks. With the introduction of the SASB, however, the argument of financial ("financial") materiality imposed the strategic selection of relevant data for the evaluation of profitability. Subsequently, through the TCFD, the standards included climate risks ("climate", "risk", "scenario"), marking the transition to the three areas of interest – environment, governance, and social – and emphasizing the need for a prospective assessment of the impact on the activity. In the current CSRD/ESRS phase, the data are focused on sustainability, governance, and stakeholders, reflecting the convergence of these dimensions in a unified vision of sustainability and corporate responsibility, in which each ESG pillar supports an integrated strategic approach, capable of combining financial performance objectives with those of social and environmental impact.

Given the evolution of ESG reporting standards, the need for a specific audit framework to regulate the verification of these reports and to provide stakeholders with guarantees on the credibility of the information becomes evident. In this context, the ISAE 3000 standard stands out as an integrative methodological tool, providing a clear set of requirements and procedures for achieving both limited and reasonable assurance of non-financial data. By applying the standard, auditors can systematically address the traceability of decisions, the consistency of collection processes, and the validation of social, environmental, and governance indicators, thus ensuring the transparency and accountability of the reports.

Figure no. 1. Top 10 words for analyzed standards



Source: authors' projection

According to ISAE 3000, the assurance process is structured in five fundamental stages, each with significant methodological and professional implications, especially in the context of the expansion of ESG reporting obligations. Acceptance of the assignment involves evaluating the essential preconditions, such as the existence of appropriate criteria, access to relevant information, and ensuring the independence of the professional. Depending on the type of insurance – limited or reasonable – the requirements for risk documentation and anticipation vary significantly. Reasonable engagements require a higher degree of certainty and extensive diligence in the planning and execution of procedures (ISAE 3000, articles 24-32).

Mission planning involves establishing a coherent strategy to identify significant risks and define materiality thresholds. In the context of sustainability reporting, this stage highlights the challenges associated with the multidimensional nature of information and the lack of uniform methodological frameworks. The degree of professionalism required extends beyond traditional standards of financial auditing, encompassing advanced knowledge in areas such as climate change, governance, and human rights (ISAE 3000, articles 33-38).

The evidence collection stage is regulated according to the desired level of assurance: for reasonable assurance, the auditor must obtain sufficient evidence to reduce the

risk of an inadequate conclusion being made to an acceptable level, while in the case of limited assurance, moderate assurance is sought through predominantly analytical and interview procedures (ISAE 3000, arts. 44-45). These differences underscore the need for methodological adaptation, particularly in relation to the qualitative and often narrative content of ESG reports, where factual verification is more challenging.

The formulation of the conclusion is a central step, as the expression of the opinion – either in the form of "we are not aware of any significant issues" (limited assurance) or through a positive statement (reasonable assurance) – directly affects the perception of credibility of the sustainability report. According to ISAE 3000 (art. 49-52), the expression of the level of trust must be clear, undistorted, and supported by well-founded reasoning.

In the final stage, reporting involves clearly structuring all conclusions, disclosing limitations, and explaining the scope of application. Clarity, coherence, and transparency are key, especially in relation to multiple audiences (investors, authorities, civil society). ISAE 3000 (articles 69-70) requires that the report not only be technically compliant but also understandable and user-oriented, which, in the context of ESG, requires an additional adaptation in the expression of risks and uncertainties.

**Table no. 1. The main differences between reasonable and limited insurance**

Aspect	Reasonable Assurance	Limited insurance
<b>Level of assurance</b>	High – The risk of erroneous conclusion is reduced to an acceptable level.	Moderate – The risk of expressing an erroneous conclusion is reduced, but not eliminated.
<b>Types of procedures</b>	Diverse and rigorous: testing procedures, inspections, observations, recalculations and external confirmations.	Mostly analytical and based on interviews and indirect observations.
<b>Substantiation of the insurance</b>	Sufficient and adequate evidence to provide a solid basis for conclusions.	Limited evidence, which only supports a negative conclusion (e.g. "I have not identified...").
<b>Formulation of the conclusion</b>	Positive ("In our opinion, the information is...")	Negative ("We have not identified any evidence that the information is not...")
<b>Degree of intrusion into processes</b>	High – involves extensive interventions in the entity's control and reporting systems.	Low – it is based on an indirect assessment and often on information already submitted by the client.
<b>Professional involvement</b>	It requires a high level of professional skepticism and documentation of each procedure applied.	It requires the application of professional judgment, but with less intensity and granularity.

Source: authors' projection.

According to ISAE 3000, the difference between limited and reasonable assurance (**Table no. 1**) is not only reduced to the intensity of the procedures applied, but involves a fundamental change in the role and responsibilities of the ESG auditor. In a context where the reported information is often narrative, difficult to verify using traditional methods, and influenced by organizational and societal factors, the choice of assurance level must be viewed as a balance between practical efficiency and professional responsibility.

Limited assurance, based mainly on less detailed analytical procedures and checks, can lead to formal validation, which may be insufficient for users with high expectations. On the other hand, reasonable assurance, through the rigor and extent of the testing involved, provides a higher degree of credibility, but requires extensive expertise and significant involvement in the entity's reporting processes.

Thus, ISAE 3000 does not establish a fixed model, but proposes a flexible but demanding framework, in which the efficiency of the ESG assurance process depends on the auditor's ability to adapt the methodology to the specifics of non-financial information. In a changing environment, the value of reporting does not result solely in procedural compliance, but also in the consistent application of professional standards, oriented towards transparency, relevance and long-term confidence-building.

### 3.2. Evaluation of the criteria according to ISAE 3000

The assessment of audit criteria is a fundamental element of any non-financial assurance engagement, as the entire assessment process relates to these 'suitable criteria'. They must meet five cumulative conditions: they must be relevant, complete, reliable, neutral and intelligible (art. 67–68). In ESG reporting, criteria can come from established frameworks such as GRI, ESRS, companies' own standards, or other industry regulations. The central problem is not only the existence of these criteria, but also their degree of operational definition. For example, concepts such as "net zero" or "responsible governance" can vary radically in content and applicability, generating semantic ambiguities that affect the robustness of verification.

ISAE 3000 does not provide a pre-established scheme of indicators or methodologies, but places on the professional the critical task of interpreting and validating the criteria used. Therefore, the level of professional

judgment involved is substantial, and the auditor must assess whether those criteria realistically allow an assurance conclusion to be made. In the case of qualitative criteria – such as those related to ethics, diversity, organizational culture or social responsibility – the difficulty of verification increases exponentially. Not only the lack of quantifiable landmarks complicates the mission, but also the dependence on narrative documents, interviews and sources that are difficult to triangulate. Thus, the standard outlines a framework of procedural rigor, but the success of ESG assurance critically depends on the quality of the chosen criteria and the auditor's ability to navigate between methodological formalism and the complex, volatile and sometimes contradictory reality of non-financial information.

### 3.3. Implicit limitations of ISAE 3000

Despite its essential role in structuring assurance engagements for non-financial information, it has a number of implicit limitations that must be critically understood when applied in the context of sustainability. First, the standard does not provide a pre-established set of procedures, but rather outlines a principled framework within which the auditor must exercise professional judgment. This methodological flexibility is necessary to accommodate the diversity of assurance commitments, but at the same time generates significant variations in application, especially when it comes to complex and heterogeneous ESG reporting.

Secondly, ISAE 3000 does not impose a set of ESG measurement standards, but is based on the criteria chosen by the client (e.g. GRI, ESRS, own policies), which can lead to a lack of comparability between entities or even to the choice of insufficiently robust benchmarks. Thus, the quality of assurance depends directly on the clarity, relevance and coherence of these external criteria, not on a unitary system imposed by the standard.

Third, although ISAE 3000 does not explicitly address the phenomenon of greenwashing, its framework can be used to assess the risks associated with it, through the application of analytical procedures and the rigorous examination of the criteria and statements included in the reporting. However, the effectiveness of the greenwashing risk assessment is conditional on the availability of verifiable information and the degree of professional skepticism exercised by the auditor.

Therefore, although ISAE 3000 offers, as mentioned before, a flexible and extensible framework, its structural limitations are the lack of standardised procedures, the

absence of its own set of ESG indicators and the failure to explicitly address emerging risks such as greenwashing. They impose greater accountability on the auditor and require a more rigorous methodological anchoring to guarantee the credibility of the assurance process.

### 3.4. Pre- and post-pandemic benchmarking of ESG assurance reports

To assess the impact of the introduction of ESG regulatory standards, we conducted a longitudinal analysis of the sustainability reports of Electrica SA (2016–2024) and OMV Petrom (2011–2024). The two companies were selected because they are some of the largest companies in Romania, are listed on the Bucharest Stock Exchange (BVB), have a consistent reporting history, and together cover the energy sector in two distinct industries – utilities versus oil & gas – which provides both comparability on a common core of indicators, as well as capturing the specificity of the sector. For each company and for each annual report downloaded from their websites, we systematically examined: the structure of the document, the framework of standards that underpinned the preparation of the sustainability reports (GRI, TCFD references, SASB, EU Taxonomy and, where applicable, ESRS), the developments between years, the assurance according to ISAE 3000 (level: limited/reasonable and

external auditor, if mentioned) and the main indicators reported. We also analyzed the effects of the pandemic context (2020–2021) on the content and frequency of reporting, to observe whether the pandemic accelerated the adoption and adaptation of ESG standards and assurance missions. The comparison between Electrica SA and OMV Petrom was made strictly on:

- common indicators, such as: GHG (Greenhouse Gases) Scope 1 emissions - direct greenhouse gas emissions and Scope 2 - indirect emissions from the energy purchased and consumed by the company; energy consumption; TRIR (Total Recordable Injury Rate) / LTIR (Lost Time Injury Rate); human capital;
- sector-specific indicators: SAIDI (System Average Interruption Duration Index) - the cumulative average duration of interruptions for a user in a range)
- SAIFI (System Average Interruption Frequency Index) per user in a range for utilities; Oil & gas spills.

Overall, the pre-pandemic (2016-2019) versus post-pandemic (2020-2024) contrast, points to an intensification of ISAE 3000 assurance and a migration from GRI-centric reporting to ESRS requirements, imposing caution in longitudinal and cross-company comparability.

**Table no. 2. Structure of sustainability reports in the pre-pandemic, pandemic and post-pandemic periods**

Period	Electrica SA	OMV Petrom
<b>Pre-pandemic</b> (until 2019)	<b>2016:</b> first report; operational chapters + GRI index. <b>2017:</b> adds 'stakeholders' and materiality matrix. <b>2018:</b> expand on environmental, social, community; GRI Index. <b>2019:</b> maintains complete structure (services, R&D – R&D – environment, employees, society, GRI).	<b>2011–2013:</b> HSSE/Environmental/Social Overall Structure + "Resourcefulness". <b>2014–2015:</b> GRI G4 structures with "Areas of focus" and "Performance in detail" + "Assurance statement". <b>2016:</b> broad structure per profile, GRI Index. <b>2017–2019:</b> organization on the 5 pillars (HSSE, carbon, innovation, employees, principles)
<b>Pandemic</b> (2020–2021)	<b>2020:</b> COVID-19 chapters, innovation; environment (climate, waste, biodiversity), team, community; non-financial performance + GRI. <b>2021:</b> similar structure to 2020 ("2021 in figures", governance, environment, employees & society).	<b>2020:</b> adds risk map, TCFD; 'Performance in detail', annexes (GRI, TCFD, verification statement). <b>2021:</b> strengthens sustainability governance, low-carbon transition (reduction of greenhouse gas emissions), responsible operations, people & communities; annexes (GRI, EU Taxonomy, TCFD, verification).
<b>Post-pandemic</b> (2022–2024)	<b>2022:</b> keeps the 2021 scheme + separate EU Taxonomy chapter. <b>2023:</b> adds "Integrated Vision & Strategy", extended materiality; waste corrections 2022; EU Taxonomy chapter. <b>2024:</b> transition to integrated report (Administrators' Report) with "ESRS Notes", Article 8 Taxonomy, assurance report.	<b>2022–2023:</b> stable structure on governance, low-carbon transition, responsible operations, people & communities, innovation; annexes (Taxonomy, GRI, TCFD, verification). <b>2024:</b> "Sustainability Statement" in the Annual Report, structured on ESRS (environmental, social, governance) sets.

Source: authors' projection

Table no. 3. Standards used for sustainability reporting in pre-pandemic, pandemic and post-pandemic periods		
Period	Electrica SA	OMV Petrom
Pre-pandemic	<b>2016–2018:</b> GRI G4 Core (+ Energy Sector Supplement). <b>2019:</b> GRI Standards Core + Energy Sector; according to OMFP 1938/2016 & 2844/2016.	<b>2011–2013:</b> no explicit framework (GRI has only appeared since 2012 at the level of guidance). <b>2014–2015:</b> GRI G4 Core + OG (Oil & Gas sector disclosures); <b>2016:</b> GRI-G4 Core + OG; IPIECA alignment (best practice guide). <b>2017–2019:</b> GRI Standards Core + OG IPIECA alignment; according to 2014/95/EU.
Pandemic	<b>2020–2021:</b> GRI Standards Core + Energy Sector; OMFP 1938/2016 & 2844/2016; in 2020 the EY (climate & sustainability) partnership appears.	<b>2020:</b> GRI Core; IPIECA alignment; TCFD (supporter); considers the SASB. <b>2021:</b> GRI (updated 2020) + TCFD, SASB, IPIECA + EU Taxonomy reporting.
Post-pandemic	<b>2022:</b> GRI Core + Energy; reporting art. 8 EU Taxonomy; BVB ESG principles. <b>2023:</b> GRI 2021 Core + Energy; OMFP 1239/2021 (Taxonomy). <b>2024:</b> ESRS (CSRD) + OMFP 2844/2016; EU Taxonomy; ISQM 1 (audit quality).	<b>2022:</b> GRI Universal 2021 + GRI 11 OG; TCFD, SASB, IPIECA; EU Taxonomy. <b>2023:</b> GRI (incl. GRI 11 OG 2021) + TCFD, SASB, IPIECA; EU Taxonomy. <b>2024:</b> ESRS (OMFP 85/2024 amending OMFP 2844/2016) + EU Taxonomy.

Source: authors' projection

Table no. 4. Evolution of sustainability reports in the pre-pandemic, pandemic and post-pandemic periods		
Period	Electrica SA	OMV Petrom
Pre-pandemic	<b>2016→2017:</b> +7 material indicators; materiality extension. <b>2018:</b> new environmental indicators (biodiversity, waste) & community; first external evaluation (Romania CSR Index). <b>2019:</b> Strategy 2020–2024, focus on sustainability & Green Deal; investments, distribution > ANRE (National Energy Regulatory Authority) requirements.	<b>2011→2013:</b> institutionalizes "Resourcefulness"; 2013 joins UNGC - United Nations Global Compact 2014: <b>migrates to GRI G4 Core</b> . <b>2015:</b> continuity. <b>2016:</b> report "in accordance with GRI-G4". <b>2017:</b> transition to GRI Standards; according to 2014/95/EU. <b>2019:</b> Sustainability Strategy 2019–2025.
Pandemic	<b>2020:</b> COVID-19 adaptation; S/M focus; EY partnership (methodological validation). <b>2021:</b> continuity, without major changes in structure/method compared to 2020.	<b>2020:</b> Introduces TCFD & external insurance; strengthens risk/management. <b>2021:</b> adds EU Taxonomy reporting, detailed climate targets (e.g. Net Zero operations 2050; -30% carbon intensity by 2030 vs. 2019).
Post-pandemic	<b>2022:</b> adds EU Taxonomy chapter (Art. 8). <b>2023:</b> 2022 waste correction; extended materiality. <b>2024:</b> migration to ESRS, integration into the annual report; extension of internal ESG controls.	<b>2022:</b> Updates materiality according to GRI 2021. <b>2023:</b> changes the insurance auditor (EY → KPMG). <b>2024:</b> migration to ESRS and integration into the Annual Report.

Source: authors' projection

Table no. 5. Aspects referring to insurance missions in the pre-pandemic, pandemic and post-pandemic periods		
Period	Electrica SA	OMV Petrom
Pre-pandemic	<b>2016–2019:</b> no ISAE 3000 missions for non-financial; audited financial statements (Deloitte).	<b>2011–2013:</b> no ISAE; some audited HSSE/environment (EY) indicators in 2011. <b>2014–2015:</b> Limited insurance issued by EY under ISAE 3000. <b>2016:</b> The report was not audited. <b>2017–2019:</b> no external assurance; only the "existence of the report" verified (cf. the requirements of art. 48 OMFP 2844/2016).

**Table no. 5. Aspects referring to insurance missions in the pre-pandemic, pandemic and post-pandemic periods**

Period	Electrica SA	OMV Petrom
<b>Pandemic</b>	<b>2020:</b> without ISAE; EY provides methodological validation (not ISAE mission). <b>2021:</b> no external assurance mentioned; only ISA financial audit.	<b>2020:</b> ISAE 3000 limited insurance (issued by EY). <b>2021:</b> ISAE 3000 limited insurance (issued by EY).
<b>Post-pandemic</b>	<b>2022–2023:</b> not subject to ISAE 3000; <b>2023:</b> Deloitte verifies data according to the requirements of art. 48 OMFP 2844/2016. <b>2024:</b> ISAE 3000 (Revised) limited insurance issued by Deloitte; conclusion with turnover reservations (uninvoiced receivables).	<b>2022:</b> ISAE 3000 limited insurance (issued by EY). <b>2023:</b> ISAE 3000 limited insurance (issued by KPMG). <b>2024:</b> ISAE 3000 limited insurance (issued by KPMG).

Source: authors' projection

**Table no. 6. The main indicators analysed in the sustainability reports in the pre-pandemic, pandemic and post-pandemic periods**

Period	Electrica SA	OMV Petrom
<b>Pre-pandemic</b>	<b>2016:</b> revenues RON 5,518 million; EBITDA 960 thousand; net profit 469 million; 17.5 TWh distributed; 9,685 employees; 13 GRI material themes. <b>2017:</b> SAIFI/SAIDI, CPT (Customer Power Tolerance) OSH 403-2 (Occupational Health and Safety), 405-1 (Diversity and Equal Opportunities), 404-1 (Training and Education), 205-2/3 (Anti-Corruption). <b>2018:</b> medium investments ~11.9 million RON; 7.5 MW solar; 400,000 h training; 0 serious incidents in distribution; 16 material topics. <b>2019:</b> distribution investment plan ~600 million RON; Green Deal objectives.	<b>2011–2013:</b> emissions, water, discharges, waste; occupational safety; HR & community (multi-year series). <b>2014–2015:</b> GHG Scopes 1–3; oil spills; safety indicators (fatalities, severity, accidents in/away). <b>2016–2019:</b> HSSE/environment/HR/ethics & community complete set; carbon management & efficiency; economic/social performance.
<b>Pandemic</b>	<b>2020:</b> average investments RON 14.36 million; >75% recycled waste; >31% renewable energy; 3,986,017 CV (green certificates); 7.5 MW (megawatt) solar; 8,147 employees; 18,041 h training; Board (Management) 32.2% women. <b>2021:</b> CO <sub>2</sub> emissions, energy consumption, GRI 403, number of employees, diversity, community involvement (listed as themes).	<b>2020–2021:</b> economic/social/environmental performance; HSSE (e.g. TRIR), carbon management (CO <sub>2</sub> /methane intensities), customers & product, employees/diversity, supply chain; <b>2021</b> includes key indicators EU Taxonomy.
<b>Post-pandemic</b>	<b>2022:</b> EBITDA, revenues (incl. CV), employee benefit expenses, tax, dividends; EU Taxonomy chapter. <b>2023:</b> 13 integrity warnings; GRI 403 (Occupational Health and Safety) & 405 (Diversity and Equal Opportunities); detailed financial performance/environment; waste corrections 2022. <b>2024:</b> alignment Taxonomy 0% turnover – turnover /CapEx – Capital Expenditures/OpEx – Operating expenditures; GHG emissions, energy consumption; social and governance indicators according to ESRS.	<b>2022–2023:</b> GRI + Taxonomy indicators (CO <sub>2</sub> /methane intensities, HSSE, training, diversity, community investments). <b>2024:</b> indicators structured on ESRS (environment/social/governance) + Taxonomy indicators (according to art. 8).

Source: authors' projection

Analyzing the evolution of sustainability reporting for the two companies – Electrica SA and OMV Petrom, two similar approaches to compliance can be observed: both consider GRI (G4/Standards/GRI 2021) for primary

reporting, and then, in 2024, ESRS; However, the timing of adoption and the content of the reports differ. OMV Petrom follows a clear sequence: at the beginning (2011) not based on a reporting framework, and then in the

period 2012 – 2019 it adopted the GRI regulations (up to GRI G4). Then, in the period 2020–2023, the company consolidated its reporting also on the GRI, complemented by frameworks such as TCFD, SASB and IPIECA, to which the reporting according to the EU Taxonomy has been added since 2021. In 2024, OMV Petrom made the transition to ESRS, integrating the sustainability statement into the annual report. OMV Petrom illustrates the path of a methodical pioneer, and what characterizes this evolution is also the constant discipline in external insurance: ISAE 3000 (limit) in 2014-2015, resumed from 2020, until now.

Electrica later initiated the procedures for sustainability reporting, but it was an accelerated and coherent adaptation: for the period 2016-2018 it was based on GRI G4, and then it switched to GRI Standards – including the update of GRI 2021, in the period 2019-2023. In the follow-up, it introduced reporting according to the EU Taxonomy in 2022, and in 2024 it adopted the ESRS. The year 2024 marks a double premiere - the implementation of ESRS and the first ISAE 3000 (limit) external assurance experience issued by Deloitte Romania, which highlights a conclusion with reservations on a specific component of financial reporting - turnover in relation to unbilled receivables.

Observing the evolution of the two companies in sustainability reporting, we can identify two distinct strategies that converge towards the same end goal. Both companies consider the GRI universe as their initial regulation and will reach ESRS in 2024, with the integration of the sustainability statement into the annual report. The key difference lies in the timing of adoption and the breadth of the framework implemented.

From the perspective of content organization, the two approaches reflect different philosophies. OMV Petrom structures the information early on thematic pillars - HSSE, carbon, innovation, people and business principles - constantly maintaining the "Performance in detail" section. This organization suggests an integrated vision of sustainability as a coherent system of practices. Electrica, on the other hand, builds its reporting around the operational reality - the lines of activity (distribution, supply, services) - supplementing with the GRI Index and ESRS grades at the end.

In terms of the analysis of indicators, there is a common set that allows the comparison between the two, namely: GHG Scope 1–2, energy consumption, TRIR/LTIR and human capital. However, the specifics of the sector create

divergences: Electrica closely follows SAIDI/SAIFI and CPT, essential indicators for the quality of energy distribution, while OMV Petrom reports hydrocarbon spills in advance, develops a more comprehensive HSSE set and includes indicators dedicated to carbon management.

Looking back, OMV Petrom is shaping up to be a "first mover" with incremental maturation and consistent assurance, while Electrica adopts the role of "fast follower" with an accelerated recovery in the period 2019–2024.

### Structure of the report (Table no. 2)

#### Pre-pandemic period (2016-2019)

- **Electrica:** initiates in 2016 a simplistic reporting (profile, services, performance), then in 2017–2018 adds governance, stakeholders and community chapters, and "Performance in figures" introduces a more modular format. In 2019, chapters dedicated to research & development and the objectives of the Green Deal will appear.
- **OMV Petrom:** since 2016 it has been reporting on a complete structure (introduction, profile, governance, risk, product responsibility, materiality), and in 2017-2019 it organizes the content on the five pillars (HSSE, carbon, innovation, people, business principles), with a constant "Performance in detail" section.

#### Pandemic period (2020–2021)

- **Electrica:** in 2020 adds a chapter on "Innovation" and a section on the response to COVID-19; collaboration with EY for methodological validation (without ISAE). In 2021 it retains the general structure, with a focus on the environment, health and safety, diversity and community involvement.
- **OMV Petrom:** in 2020 completes the structure through risk & management map, customer/product chapter and annexes (GRI, TCFD, statement of insurance); introduces ISAE 3000 limited insurance. In 2021, it emphasizes the transition to low emissions and includes reporting according to the EU Taxonomy.

#### Post-pandemic period (2022–2024)

- **Electrica:** maintains GRI as support in 2022 and integrates the EU Taxonomy with detailed annexes; in 2023 expands materiality analysis and economic context. In 2024 it integrates sustainability into the Annual Report under ESRS, with Assurance Report (ISAE 3000, limited, Deloitte, with reservations).

- **OMV Petrom:** in 2022–2023 it maintains the structure on thematic pillars, emphasizing the transition to low emissions, people & communities and innovation & digitalization; 'Performance in detail' remains the core of the data, the annexes constantly include GRI/TCFD/EU Taxonomy and external verification. In 2024, it will move to ESRS, through the Sustainability Statement integrated into the Annual Report, structured on Environmental-Social-Governance, with limited insurance (KPMG).

### Standards used (Table no. 3)

#### Pre-pandemic period

- **Electrica SA.** Between 2016-2018, the company reported according to the GRI G4 Core (Global Reporting Initiative, Core option), supplemented by the Energy Sector Supplement (GRI). In 2019, it switched to GRI Standards Core and continued to use the energy sector supplement. The reports were also made in accordance with the Romanian regulations: OMFP 1938/2016 (Order of the minister of public finance on non-financial reporting) and OMFP 2844/2016 (Order for the application of IFRS and consolidated non-financial reporting, in line with EU Directive 2013/34/EU).
- **OMV Petrom.** Between 2011-2013, the company did not have an explicit framework, although the GRI was mentioned as a guide. In 2012, GRI 3.1 (Global Reporting Initiative – Guide 3.1, previous version G4) was used. For 2014–2015, the reports were made according to the GRI G4 Core and the OG (Oil & Gas sector disclosures) supplement. In 2016 he continued on GRI G4 Core + OG, aligning himself with the recommendations of IPIECA (International Petroleum Industry Environmental Conservation Association). Subsequently, between 2017-2019, it switched to GRI Standards Core, maintaining OG sector reporting, also with alignment with IPIECA and in accordance with Directive 2014/95/EU (EU Non-Financial Reporting Directive).

#### Pandemic period

- **Electrica SA.** It continued to use GRI Standards Core and Energy Sector Supplement, in accordance with OMFP 1938/2016 and OMFP 2844/2016. In 2020, he also involved the consulting and audit company EY (Ernst & Young) in a partnership in the climate & sustainability area.

- **OMV Petrom.** In 2020, reporting was based on GRI Core, with alignment with IPIECA, and the inclusion of TCFD recommendations and consideration of the SASB framework. In 2021 it used GRI Standards (updated in 2020) together with TCFD, SASB and IPIECA, and in addition introduced reporting according to the EU Taxonomy (EU Taxonomy, Regulation 2020/852 – European framework for sustainable activities, art. 8 on CA/CapEx/OpEx).

#### Post-pandemic period

- **Electrica SA.** In 2022, it reported on the basis of the GRI Core + Energy Sector, including for the first time the reporting provided by art. 8 of the EU Taxonomy and the principles of the BVB ESG (Bucharest Stock Exchange – ESG guide for listed companies). In 2023, it switched to GRI 2021 Core (updated, modular version) with the energy supplement and complied with OMFP 1239/2021 (Order of the minister of public finance on reporting according to the EU Taxonomy). In 2024, it adopted the ESRS. The reports were made in parallel with OMFP 2844/2016, EU Taxonomy and the implementation of ISQM 1 (International Standard on Quality Management 1), ensuring the quality of external verification.
- **OMV Petrom.** In 2022 it adopted GRI Universal 2021 + GRI 11 OG (Oil & Gas 2021, sector standard), together with TCFD, SASB, IPIECA and EU Taxonomy reporting. In 2023 it continued with the same frameworks (GRI incl. GRI 11 OG 2021, TCFD, SASB, IPIECA, EU Taxonomy). In 2024 it switched to ESRS, implemented through OMFP 85/2024 (Order amending OMFP 2844/2016 for the integration of ESRS), with full reporting according to the EU Taxonomy.

### Evolution between years (Table no. 4)

#### Pre-pandemic period (2011-2019)

- **OMV Petrom:**
  - 2011–2013: first reports, without a clear framework (GRI 3.1 appears from 2012; 2013 "facts & figures" report).
  - 2014–2015: reporting according to GRI G4 Core + OG (Oil & Gas Supplement).
  - 2016–2019: transition to GRI Standards Core, 5-pillar structure (HSSE, carbon, innovation, people, business principles), according to Directive 2014/95/EU.

- **Electrical:**
  - 2016: First report on GRI G4 Core.
  - 2017–2018: materiality expansion, stakeholder mapping, new environmental and social indicators appear.
  - 2019: transition to GRI Standards Core, launch of the 2020–2024 Strategy, significant investments in the network.

*Pandemic period (2020-2021)*

- **OMV Petrom:** GRI reports consolidated with TCFD (climate), SASB (investors) and IPIECA; EU Taxonomy reporting is added in 2021.
- **Electrica:** in 2020 new chapters on COVID-19 and Innovation appear; structure maintained in 2021, with a focus on methodological validation through external consultancy.

*Post-pandemic period (2022-2024)*

- **OMV Petrom:**
  - 2022–2023: GRI 2021 + GRI 11 OG reporting, maintenance of TCFD, SASB, IPIECA frameworks, plus EU Taxonomy integration.
  - 2024: transition to ESRS (under the CSRD Directive), integrated into the annual report.
- **Electrical:**
  - 2022: applies the EU Taxonomy according to Art. 8.
  - 2023: Expand materiality analysis and recalibrate data.
  - 2024: moves to ESRS, integrates sustainability into the annual report and adopts the first external assurance missions.

**Aspects referring to assurance missions (Table no. 5)**

*Pre-pandemic period*

- **OMV Petrom:** the first attempts at ISAE 3000 limited insurance (EY) in 2014–2015, but since 2016–2019 it is no longer found constantly.
- **Electrica:** did not have formalized insurance missions; only external validations through CSR Index.

*Pandemic period*

- **OMV Petrom:** in 2020 it reintroduces the ISAE 3000 (EY) limited insurance, based on selected indicators.

- **Electrica:** collaborates with EY for methodological validation, but without a formal ISAE framework.

*Post-pandemic period*

- **OMV Petrom:**
  - 2022: ISAE 3000 (EY).
  - 2023: Change auditor at KPMG.
  - 2024: ISAE 3000 limited insurance under ESRS (KPMG).
- **Electrical:**
  - 2024: first ISAE 3000 limited assurance assignments, issued by Deloitte, with conclusion with revenue reservations (uninvoiced receivables).

**Main indicators (Table no. 6)**

*Pre-pandemic period*

- **OMV Petrom:** HSSE core set (fatalities, TRIR, LTIR, severity, accidents), environmental indicators (GHG Scope 1–3, emissions, water, waste, leakage), human resources and community.
- **Electricity:** financial (revenues, net profit, EBITDA), distributed energy and CPT, investments in the network, number of employees, warnings, OSH incidents.
- Both: SAIFI and SAIDI operational indicators (continuity of supply).

*Pandemic period*

- **OMV Petrom:** reports HSSE + carbon indicators, but adds intensities and reports according to TCFD/SASB; maintains IPIECA guidelines.
- **Electrica:** includes pandemic-specific indicators (online training hours, health and safety), Green Deal and CPT objectives.

*Post-pandemic period*

- **OMV Petrom:** expands HSSE indicators (TRIR/LTIR), CO<sub>2</sub>/methane intensities, diversity and training, community investments; adds EU Taxonomy indicators (CA, CapEx, OpEx).
- **Electricity:** more detailed on CO<sub>2</sub>, energy, OSH (GRI 403), diversity (GRI 405); since 2022 reports EU Taxonomy (CA/CapEx/OpEx).
- **2024 (both entities):** reports according to ESRS, structured on Environmental-Social-Governance, with

integrated indicators and full alignment with the EU Taxonomy.

The comparative analysis of the evolution of sustainability reporting highlights two convergent trajectories towards the same standard, namely ESRS, differentiated by the timing of implementation and the multitude of frameworks adopted.

Electrica SA initiates the process in 2016 with the GRI G4 – Core standard, initially using an elementary linear structure (profile-services-performance). The company demonstrates a remarkable ability to adapt quickly: in 2017–2018 it integrates corporate governance dimensions, systematic stakeholder mapping and expands environmental indicators (biodiversity, waste management). The year 2019 marks the strategic anchoring in the 2020–2024 Strategy and the intensification of investments in distribution infrastructure (+43% above ANRE's requirements). In 2020, the company introduces the chapter dedicated to innovation and documents the organizational response to the pandemic, implementing a methodological validation without ISAE certification. The subsequent period maintains compliance with the GRI Standards until 2023, including the 2022 EU Taxonomy reporting. The transition to 2024 is achieved by integrating ESRS into the annual report and obtaining the first ISAE 3000 (Deloitte) limited insurance, which highlights a qualified conclusion on the "turnover – unbilled receivables" component.

OMV Petrom presents a path of progressive maturation over an extended period. The company moves from the absence of a declared framework in 2011, to the implementation of GRI 3.1 in 2012, followed by the reporting of GRI G4 – Core at OMV Group level in the period 2014–2015, accompanied by ISAE 3000 (EY) limited insurance. Since 2016, reporting has been carried out at OMV Petrom level, structured on thematic pillars: HSSE, carbon management, innovation, human capital and business principles. The publication of the Strategy 2019–2025 in 2019 constitutes the strategic anchor point. The year 2020 represents the inflection point: maintaining GRI is combined with the addition of TCFD and SASB frameworks, and the return to ISAE 3000 limited assurance (EY) marks the strengthening of external verification practices. From 2021, the portfolio is completed with the reporting of the EU Taxonomy. The period 2022–2023 is characterized by the maintenance of the GRI 2021 (including the specifications of the Oil & Gas sector) and the change of auditor at KPMG in 2023. The

transition to 2024 is materialized by the adoption of the ESRS (Sustainability Statement Integrated in the Annual Report) with limited insurance (KPMG).

From a benchmarking perspective, the fundamental convergence is obvious: both entities adopt the ESRS and integrate the EU Taxonomy ahead of the final transition. The differences are identified at the calendar level and in the number of standards applied: OMV Petrom implements external insurance and market frameworks (TCFD/SASB/Ipieca) previously and constantly, while Electrica achieves an accelerated recovery in the period 2022–2024. At the level of indicators, a comparable common set is identified (GHG Scope 1–2, energy consumption, TRIR/LTIR, human capital), in parallel with sector-specific indicators: SAIDI/SAIFI and CPT for Electrica versus hydrocarbon spills and an extended HSSE set for OMV Petrom.

The conclusion highlights the validity of two distinct implementation strategies – methodical pioneering (OMV Petrom) and accelerated alignment (Electrica) – which lead, in 2024, to the same level of formal compliance with European reporting requirements.

### **3.5. Auditors' challenges in sustainability reporting**

As non-financial transparency requirements expand and ESG (environmental, social, and governance) criteria become essential components in companies' decision-making processes, auditors are facing unprecedented methodological and operational challenges. The complexity of data on environmental, social and governance performance, the lack of a globally uniform reporting framework and the need to develop interdisciplinary skills require a profound reassessment of how sustainability information is trustworthy.

To systematize these challenges and identify both internal and external resources that can facilitate or hinder an effective ESG audit, we used a SWOT analysis:

#### **1. Strengths**

Auditors start from an impeccable methodological discipline, acquired in financial auditing, and professional skepticism – crucial in detecting discrepancies – extends directly to ESG data, guaranteeing robustness and confidence in the process (Awadallah & El-Said, 2016). In addition, adherence to the IESBA Code and the

implementation of ISQM 1 amplifies independence and quality control, creating an unquestionable ethical framework for non-financial insurance.

## 2. Weaknesses

The lack of a common language in sustainability reporting – scattered terminology and mismatched criteria – diminishes the consistency of assessments and requires auditors to completely review testing procedures to ensure consistency and rigour (Rahman & Putri, 2023). Moreover, the lack of expertise in areas such as climate risk or social responsibility reduces the accuracy of the analysis and illustrates the opportunity for subjective interpretations (Agustina & Indrayani, 2020).

## 3. Opportunities

The demand for ESG auditing can be transformed into a strategic advantage through intensive training programs in environmental, social and governance (Razali et al., 2025). Also, the implementation of digital text-mining solutions and interactive visualization tools has the potential to significantly increase the efficiency and depth of non-financial data analysis (Tarek et al., 2017). The convergence of financial and sustainability audits also offers the possibility of a synthetic assessment, capable of capturing the interdependencies of risks and opportunities.

## 4. Threats

ESG regulations – from CSRD and the EU Taxonomy to the International Sustainability Standards Board (ISSB) – follow one another at an ever-accelerating pace, forcing audit firms to have huge resources and costs for continuous adaptation. The pressure of public opinion and investors for absolute transparency increases reputational risk: any omission or superficial audit can affect the credibility of reporting. At the same time, the shortage of ESG experts – the number of specialized auditors remains insufficient compared to demand – undermines the consistent application of non-financial audit practices in line with market-imposed standards.

## Conclusions

The transformation of sustainability reporting in the energy sector, analyzed in the light of the Electrica SA (2016–2024) and OMV Petrom (2011–2024) comparative series,

illustrates an evolution from predominantly descriptive GRI instruments (G4/Standards/GRI 2021), implemented without systematic verification, to a standardized, mandatory European regulatory framework ensured by ESRS.

Organizational trajectories differ in the timing of adoption and the diversity of the frameworks implemented. Electrica makes the transition to ESRS in 2024, simultaneously obtaining the first ISAE 3000 limited insurance, which highlights a conclusion with reservations on the "turnover – unbilled receivables" component. This path follows an evolution based on the GRI and the integration of the EU Taxonomy in 2022. OMV Petrom demonstrates a pioneering approach, initiating the process in 2012 with GRI 3.1, progressing to OMV Group level reporting in the period 2014–2015 through GRI G4 with ISAE 3000 limited assurance (EY), then implementing entity-level reporting in the period 2016–2019 through GRI. The 2020–2023 interval is characterized by the strengthening of GRI reporting with the integration of the TCFD/SASB/Ipieca and EU Taxonomy frameworks (as of 2021), maintaining the limited assurance with the auditor's amendment to KPMG in 2023, in order to complete the transition to ESRS in 2024.

This structural transformation is driven by the convergence of three factors: the impact of the COVID-19 pandemic, which has significantly expanded the environmental and social sections and required the detailed description of operational risks; accelerating European regulations through CSRD, Taxonomy and ESRS; as well as the imperative of the credibility of ESG information for investors and stakeholders.

From the conceptual perspective, a transition structured in four stages is identified, common to both series analyzed: the first stage emphasizes structure and transparency through the implementation of the GRI; the second marks the emphasis on materiality and economic relevance; the third systematically integrates climate risks through TCFD; and the fourth achieves the systemic vision under ESRS, with clearly defined roles for governance, strategy, risk management and target setting. At the same time, sectoral differentiation remains legitimate and necessary. OMV Petrom structures early reporting on the HSSE–carbon–innovation–people–business principles thematic pillars, reflecting the complexity of oil operations. Electrica initially adopts the logic of the lines of activity (distribution/supply/services) and progressively converges towards materiality and ESRS, corresponding to the specificity of electricity distribution.

However, there is a common core of indicators (GHG Scope 1–2, energy consumption, TRIR/LTIR, human capital) that facilitates cross-sectoral comparability. The specific indicators – SAIDI/SAIFI and CPT at Electrica, respectively the hydrocarbon spills and the extended HSSE set at OMV Petrom – require contextual analysis to understand the sectoral performance.

This comparative evolution demonstrates that, regardless of the starting point or strategy adopted, the energy sector is converging towards European reporting standards, with key implications for transparency, accountability and comparability of sustainability reporting.

From the point of view of ESG auditing: on the one hand, the profession has structural advantages – methodological rigour, professional skepticism, ethical framework (IESBA) and quality management (ISQM 1), and on the other hand, there are also vulnerabilities such as the lack of a common language between professionals and a lack of expertise on climate/social issues, while the opportunities (interdisciplinary, digital analytics, text-mining,

visualizations) are counterbalanced by concrete threats: the accelerated pace of regulations (CSRD, Taxonomy, ISSB), reputational pressure for transparency and insufficient specialized resources for assurance missions.

The contribution of the article consists of a comparative-longitudinal analysis on two industries in the same sector (utilities vs. oil & gas) that: isolate the effect of the pandemic in the dynamics of reporting, map the chronology of frameworks (GRI → EU Taxonomy → ESRs) and illustrate the insurance trajectories (structured early initiative vs. accelerated alignment). In addition, it proposes an operational grid that can represent a guide on the preparation of reports – structure of the report, standards used, developments between years, ISAE 3000 & auditor, set of indicators – useful for both research and practice. With clearly defined assurance procedures and analysis adapted to the specifics of the industry, the ESG audit can become a consistent, comparable and directly usable tool in strategic decisions.

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**Electrica SA:** <https://www.electrica.ro/investitori/rezultate-si-rapoartari/rapoarte-de-sustenabilitate/>

### OMV Petrom:

<https://www.omvpetrom.com/ro/sustenabilitate/raportare-si-performanta/rapoarte-de-sustenabilitate>

<https://www.omvpetrom.com/ro/news/availability-of-the-annual-reports-and-the-reports-on-payments-to-governments-for-2024>

### Sursa pentru standardele analizate:

1. **CSRD:** <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2464>
2. **EU Taxonomy:** <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R0852&from=EN>
3. **GRI:** <https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-english-language/>
4. **IFRS S1:** <https://www.ifrs.org/content/dam/ifrs/publications/pdf-standards-issb/english/2023/issued/part-a/issb-2023-a-ifrs-s1->

[general-requirements-for-disclosure-of-sustainability-related-financial-information.pdf?bypass=on](#)

5. **IFRS S2:** <https://www.ifrs.org/content/dam/ifrs/publications/pdf-standards-issb/english/2023/issued/part-a/issb-2023-a-ifrs-s2-climate-related-disclosures.pdf?bypass=on>
6. **ISAE 3000:** <https://www.iaasb.org/publications/international-standard-insurance-liabilities-isae-3000-revised-insurance-liabilities-other-GOLD-AUDITS>
7. **NFRD:** <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0095>
8. **SFDR:** <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R2088>
9. **TCFD:** <https://assets.bbhub.io/company/sites/60/2022/12/tcfd-2022-overview-booklet.pdf>