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CARBON FOOTPRINT IN NON-FINANCIAL REPORTING

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Purpose: The aim of the paper is to review the requirements of the non-financial reporting on climate change.
Design/methodology/approach: Critical literature analysis. Analysis of international literature from main databases and Polish literature, legal acts relevant to the researched topic, and standards.
Findings: The evolution of the approach to non-financial reporting highlights the trend towards measurability, comparability of indicators.
Originality/value: The requirements of the new ESRS standard have been presented against the background of existing solutions.

Keywords: non-financial reporting, climate change, carbon footprint, ESRS.

Category of the paper: literature review.

1. Introduction

In recent years, the European Union has adopted a number of regulations aimed at supporting measures to promote sustainability and reduce the effects of climate change.

A standard for non-financial reporting has been established, which covers three areas – environmental, social and governance aspects – ESG. The evolution of the form in which non-financial information is presented, following the development of good practice and calculation standards, foreshadows the challenges that companies will face when the CSRD comes into force. In view of the criticism of the current presentation of non-financial information, characterised by a high degree of flexibility and the lack of a clear methodological framework (Szadziewska, Kujawski, 2022), it is important to note the potential of the new ESRS reporting framework to focus on the reliability and comparability of published information (Tylec, 2020).

2. Legal provisions

Among the legislative instruments that have successively made non-financial reporting mandatory are the Non-Financial Reporting Directive (NFRD), the EU Taxonomy Regulation (Regulation 2020/852) and the SFDR on the disclosure of information regarding sustainable investments (Regulation 2019/2088). While the first two have a direct impact on the reporting obligations of companies, the SFDR only applies to financial market participants. Nonetheless, its effect will be a greater demand from investors for non-financial information.

The directive 2014/95/EU NFRD ("Non-financial Reporting Directive") requires the disclosure of non-financial information by large public interest entities (PIEs)[1]:

- which employ over 500 people – in the case of average full-time employment per year, and
- whose total assets on the balance sheet at the end of the financial year exceed PLN 85 million or whose net revenue from the sale of goods and products for the financial year exceeds PLN 170 million.

These entities are obliged to include in their activity reports an additional statement on non-financial information, covering at least environmental, social and labour issues, compliance with human rights and anti-corruption and anti-bribery measures. Such statement should include the following information[2]:

1. a brief description of the entity's business model,
2. key non-financial performance indicators related to the entity's operations,
3. a description of the policies applied by the entity in relation to social, labour, environmental issues, respect for human rights and anti-corruption measures, as well as a description of the results of applying these policies,
4. a description of due diligence procedures - if the entity applies them under the policies referred to in point 3,
5. a description of significant risks associated with the activities of the entity that may have an adverse effect on the issues referred to in point 3, including risks associated with the entity's products or its interactions with the surrounding environment, including counterparties, and a description of the management of those risks.

[1] Article 49b of the Accounting Act of 29 September 1994 (Journal of Laws 1994, No. 121, item 591).
[2] Ibidem.

Requirements formulated in this way, which are mandatory from 2018 (2017 reports), provided considerable room for interpretation. The flexible approach to disclosure was mainly manifested in the implementation of the "comply or explain" rule. Non-disclosure of non-financial indicators is therefore allowed, provided it is adequately justified.

Regulation 2019/2088 SFDR (Sustainable Finance Disclosure Regulation) introduced sustainability-related disclosure rules for the financial services sector (e.g. insurance companies, investment companies and credit institutions that provide portfolio management services, financial advisors i.e. insurance brokers). Pursuant to the Regulation, the financial market participants are obliged to publish:

- information on their strategies for incorporating sustainability risks into their operations when making investment decisions; and
- due diligence strategy statement with regard to the adverse effects of investment decisions on sustainability factors, taking into account its size and the nature and scale of its activities and types of financial products.

Financial advisors disclose the above specified information in relation to the risks that are introduced in the investment or insurance advisory services they provide (Geerts et al., 2021).

The SFDR applies at the “entity level” (i.e. requiring financial companies to report how the organisation as a whole manages such risks) as well as at the “product level” (i.e. requiring companies to report how such risks affect their financial products). The SFDR also applies the “comply or explain” clause. Smaller companies with less than 500 employees can choose not to report due diligence processes. The regulation requires reporting of sustainability risks, even if the obliged entities do not offer ESG-related products. If an entity offers ESG-related products, the SFDR requires additional disclosures depending on how “green” the product is. The SFDR entered into force on 10 March 2021.

On 6 April 2022, the European Commission adopted a technical standard to the SFDR Regulation (hereinafter also “RTS”) clarifying the content, methods and presentation of information related to sustainability indicators, products promoting environmental and/or social aspects (Art. 8 SFDR) and products aiming at sustainable investments (Art. 9 SFDR).

The Corporate Sustainability Reporting Directive (CSRD) 2022/2464 requires companies to report annually. The reports must include data on their environmental, social, human rights, corporate governance impacts.

This directive entered into force on 1 January 2023 and will gradually oblige more entities to report (Table 1).

Table 1.
Reporting schedule according to the CSRD

Entities covered by the CSRD	Dates
Large public interest companies already covered by the NFRD and with more than 500 employees	Reporting in 2025 for 2024
Large companies that are not covered by the NFRD and have more than 250 employees and/or €40 million turnover and/or €20 million of total assets	Reporting in 2026 for 2025
SMEs, as well as other listed companies, small and non-complex institutions provided that they are large entities (listed or not) or small and medium-sized listed companies; captive insurance and captive reinsurance companies provided that they are large entities (listed or not) or small and medium-sized listed companies	Reporting in 2027 for 2026

Source: own elaboration.

The EU Taxonomy Regulation (hereinafter: taxonomy), which entered into force on 12 July 2020, reflects a common European classification system for environmentally sustainable activities. Basically, the taxonomy refers to the conditions that need to be met in order for an undertaking to be considered an environmentally sustainable activity. This is essential for investors to prevent "greenwashing" – that is, when financial products are advertised as sustainable without meeting sustainability criteria (Mustafa Khan, Mohd Ali, 2023). The taxonomy defines six environmental objectives and defines a business activity as sustainable if that activity contributes to at least two of these objectives without causing significant harm to any of the others.

3. Selected non-financial reporting standards

Non-financial information, known to be presented mostly, but not only, in Sustainability Reports, describes the company's performance regarding social, environmental, corporate governance, and human resources management issues, among others. It is an emerging topic that has gained increasing relevance in the perception of stakeholders about the information disclosed by the entity during its fiscal year (Eugénio et al., 2022).

A number of non-financial reporting systems can be identified that refer to environmental aspects and, in particular, to the impact on climate change (Loh et al., 2017). Table 2 presents selected standards.

Table 2.
Selected standards for reporting on environmental aspects

Name of standard	Overview	Framework	GHG emissions reporting
Global Reporting Initiative [GRI 301-308]	It refers to materials, energy, water, biodiversity, emissions, waste, value chain impacts.	Framework intended for private and public companies.	GRI 305 Scope 1-3 GHG Protocol
SASB Sustainability Accounting Standards Board [SASB]	Establishing disclosure standards for sustainability reporting, that facilitate the communication of information from companies to their investors.	Framework directed at investors.	According to GHG Protocol
Task Force on Climate-related Financial Disclosures [TCFD]	Promoting the integration of climate change disclosures and financial risks/ opportunities related to climate change into companies' risk management and strategic planning processes.	Initiative that targets banks, lenders, and insurance underwriters.	A set of voluntary, consistent disclosure recommendations that are intended to be used by companies to provide investors, lenders and insurers with reliable information about financial risks associated with climate impacts.
Carbon Disclosure Protocol [CDP]	Helps determine the environmental impact of the corporate activity of companies, through their questionnaire surveys.	Framework in the form of a disclosure system associated with the "Environment" dimension of ESG.	Different standards used to calculate the carbon footprint are acceptable.
European Sustainability Reporting Standards [ESRS E1-5]	They are an integral part of reporting under the CSRD.	To be used by organisations covered by the CSRD.	ESRS E1 Climate change According to GHG Protocol.

Source: Own elaboration based on: (Cruz, 2023).

GRI (Global Reporting Initiative) is an independent, international organisation based in Amsterdam that helps companies and other organisations take responsibility for their impact by providing a global common language to communicate that impact. GRI standards are currently an integral part of non-financial reporting used by many organisations.

The Task Force on Climate-related Financial Disclosures publication is an annual report on companies' disclosure of financial information related to climate impacts, in line with TCFD recommendations.

The TCFD recommendations, presented in 2015, were designed as a set of voluntary, consistent disclosure recommendations that are intended to be used by companies to provide investors, lenders and insurers with reliable information about financial risks associated with climate impacts. Work on the final form of the recommendations was completed in 2017, after extensive consultation. As a result, a set of recommendations has been developed to support transparent and reliable data reporting that allows for understanding the company's risks and opportunities in relation to the climate.

On 15 November 2022, EFRAG's Sustainability Reporting Board adopted a set of 12 final draft of the standards. Once submitted to the European Commission, they will be issued by the EC in the form of delegated acts by 30 June 2023.

4. Carbon footprint reporting according to ESRS E1

The organisation's impact on climate change as required by the CSRD will be reported according to the standard ESRS E1 - Climate change.

A draft made available on the EFRAG website sheds light on the strict reporting rules that will be mandatory from 2024. In addition, the entire "Climate change" standard will be mandatory for all entities, regardless of materiality assessment. The number of indicators that will be reported under this single standard is 84.

The standard includes the following main requirements:

E1-1 – Transition plan for climate change mitigation.

E1-2 – Policies related to climate change mitigation and adaptation.

E1-3 – Actions and resources in relation to climate change policies.

E1-4 – Targets related to climate change mitigation and adaptation.

E1-5 – Energy consumption and mix.

E1-6 – Gross Scopes 1, 2, 3 and Total GHG emissions.

E1-7 – GHG removals and GHG mitigation projects financed through carbon credits.

E1-8 – Internal carbon pricing.

E1-9 – Potential financial effects from material physical and transition risks and potential climate-related opportunities.

In terms of E1-1, the organisation describes its approach at a strategic and business model level to reducing its impact on climate change in relation to the 1.5 degrees Celsius target under the Paris Agreement. It is obliged to clarifying whether its targets are compatible with the goal of limiting global warming to 1.5 degrees Celsius. It should also describe the identified decarbonisation levers and the key actions planned regarding the product and service portfolio as well as the use of new technologies. A similar clarification should be applied to activities in the area of investment and transition financing. An organisation also addresses situations where the achievement of reduction targets may be at risk. A description of the alignment of the business to the Taxonomy Regulation and more broadly the plans for future alignment to the taxonomy (revenue, CapEx and CapEx plans) are also included where applicable.

The E1-2 disclosure refers to the identification, assessment and management of, and mitigation measures for, the significant impacts of climate change as well as the risks and opportunities associated with climate change mitigation. What needs to be described here is

whether and how the organisation's policies address areas such as: climate change mitigation, climate change adaptation, energy efficiency, renewable energy deployment and other.

Within E1-3, actions taken and planned to achieve climate-related policy goals are described. Reference should be made to the significant amounts of CapEx and OpEx that condition the implementation of the respective activities.

The aim of requirement E1-4 is to enable an understanding of the reduction targets that the organisation has set to support its mitigation and adaptation policies and to address the significant climate-related impacts, risks and opportunities. GHG reduction targets are disclosed here in absolute values (possibly also as intensity values). These objectives should relate to Scopes 1&2 and 3 for the defined organisational limits. GHG removals, carbon credits or avoided emissions should not be considered here. The base year and base year emissions are also disclosed. A new requirement, e.g. in relation to the GRI standard, is the need to update the base year for reduction targets from 2030 onwards every 5 years. The reduction targets should include at least targets for 2030 and, if available, for 2050. From 2030 onwards, target values are set after each successive five-year period. It is also determined whether the targets are scientifically justified and consistent with the goal of limiting global warming to 1.5°C. The organisation determines the expected decarbonisation levers and their overall quantitative contribution to achieving the reduction targets (e.g. energy or material efficiency and reduction in consumption, fuel switching, use of renewable energy, product and process withdrawal or substitution).

Within E1-5 the organisation provides information on energy consumption and the share of renewable energy in its overall energy mix. The disclosure includes the total energy consumption in MWh related to own operations, defined as follows:

a) total consumption of energy from non-renewable sources in high climate impact sectors (according to NACE for codes A-H), including:
   - fuel consumption from coal and coal products,
   - fuel consumption from oil and oil-related products,
   - fuel consumption from natural gas,
   - fuel consumption from other non-renewable sources,
   - consumption from nuclear products,
   - consumption of purchased or acquired electricity, heat, steam and cooling from non-renewable sources,

b) total consumption of energy from renewable sources, broken down by:
   - consumption of renewable fuels (including biomass, biogas, non-fossil fuel waste, renewable hydrogen, etc.),
   - consumption of purchased or acquired electricity, heat, steam and cooling from renewable sources,
   - consumption of self-generated non-fuel renewable energy.

Where applicable, the organisation disaggregates and separately discloses its own non-renewable and/or renewable energy production in MWh.

Moreover, the organisation should disclose information on the energy consumption (total energy consumption per net revenue) associated with activities in sectors with a high climate impact.

Under requirement E1-6, the organisation is required to disclose the gross emissions in Scopes 1, 2 and 3, as well as the total greenhouse gases emitted. When calculating emissions in these scopes, the requirements and guidance contained in the GHG Protocol and GRI 305 (which is also based on the GHG Protocol) should be taken into account, alternatively ISO 14064-1:2018. Including all greenhouse gases CO2, CH4, N2O, HFCs, PFCs, SF6, and NF3 is mandatory. Biogenic emissions are also disclosed, but separately. The latest GWP values published by the IPCC should be used. A description of the calculation methodology, the emission indicators used and the tools should also be disclosed.

Scope 1 includes direct emissions from the combustion of fuels in stationary installations, in mobile sources, diffuse emissions and those generated in production processes. Carbon absorption and emissions (CO_2, CH_4, N_2O) from direct land use and land use change are also disclosed separately.

Scope 2 includes indirect emissions related to the generation (by an external entity) of electricity, heat, cooling and steam purchased by the reporting organisation. Emissions within Scope 2 are reported using two methods: location-based and market-based.

Scope 3 includes emissions generated in the value chain. They can be a major factor in an organisation's climate impact. Calculations are performed in accordance with GHG Protocol requirements, and financial institutions should use the GHG Accounting and Reporting Standard for the Financial Industry from the Partnership for Carbon Accounting Financial (PCAF). Emissions should be calculated annually for the relevant Scope 3 categories. Scope 3 inventory should be updated every 3 years if any major changes occur.

In Scope 3, the organisation reports indirect Scope 3 GHG emissions from the consolidated accounting group (parent company and its subsidiaries); indirect Scope 3 GHG emissions from affiliates, joint ventures and unconsolidated subsidiaries where the reporting entity has the ability to control the operations and relationships (i.e. operational control); and Scope 1, 2 and 3 from affiliates, joint ventures, unconsolidated subsidiaries (investment entities) and joint contractual arrangements over which the entity does not have operational control and where these entities are part of the reporting organisation's value chain.

The manner in which the calculation results are presented in accordance with E1-6 according to the ESRS is shown in Figure 1. Compared to existing practice, e.g. according to GRI, this is a more elaborate form of presentation, taking into account the milestones and target years.

	Retrospective				Milestones and target years			
	Base year	**Compa-rative**	**N**	**% N / N-1**	**2025**	**2030**	**2050**	**Annual % target / Base year**
Scope 1 GHG emissions								
Gross Scope 1 GHG emissions (tCO_2eq)								
Percentage of Scope 1 GHG emissions from regulated emission trading schemes (%)								
Scope 2 GHG emissions								
Gross location-based Scope 2 GHG emissions (tCO_2eq)								
Gross market-based Scope 2 GHG emissions (tCO_2eq)								
Significant scope 3 GHG emissions*								
Total Gross indirect (Scope 3) GHG emissions (tCO_2eq)								
Purchased goods and services								
Optional sub-category: Cloud computing and data centre services								
Capital goods								
Fuel and energy-related activities								
Upstream leased assets								
Waste generated in operations								
Processing of sold products								
Use of sold products								
End-of-life treatment of sold-products								
Downstream leased assets								
Franchises								
Upstream transportation and distribution								
Downstream transportation and distribution								
Business travels								
Employee commuting								
Financial investments								
Total GHG emissions								
Total GHG emissions (location-based) (tCO_2eq)								
Total GHG emissions (market-based) (tCO_2eq)								

* Undertakings that choose to account for their Scope 3 emissions based on the indirect GHG emissions categories of ISO 14064-1:2018 (excluding indirect GHG emissions from imported energy) can present the information accordingly.

Figure 1. Manner of presentation of data concerning GHG emissions in Scope 1&2 and 3 according to ESRS.

Source: [Draft] ESRS E1 Climate change.

GHG intensity should also be determined based on net revenue. Manner of presentation of data according to ESRS is shown in Figure 2.

GHG intensity per net revenue	**Comparative**	**N**	**% N / N-1**
Total GHG emissions (location-based) per net revenue (tCO_2eq/Monetary unit)	-		

Figure 2. Manner of presentation of data concerning GHG intensity according to ESRS.

Source: [Draft] ESRS E1 Climate change.

When disclosing information concerning E1-7 on the removal and storage of greenhouse gases from own operations and value chain, the following should be described, among other things:

- greenhouse gases concerned,
- whether the removal and storage are biogenic, whether they result from land-use change (e.g. afforestation, reforestation, forest restoration, urban tree planting, agroforestry, building soil carbon, etc.), technological (e.g. direct capture from air) or hybrid (e.g. bioenergy with CO2 capture and storage) as well as technological details should be provided.

Manner of presentation of data concerning removals according to ESRS is shown in Figure 3.

Removals	Comparative	N	% N / N-1
GHG removal activity 1 (e.g.., forest restoration)	-		
GHG removal activity 2 (e.g.., direct air capture)	-		
...	-		
Total GHG removals from own operations (tCO_2eq)			
GHG removal activity 1 (e.g.., forest restoration)	-		
GHG removal activity 2 (e.g.., direct air capture)	-		
...	-		
Total GHG removals in the value chain (tCO_2eq)			
Reversals (tCO_2eq)			

Figure 3. Manner of presentation of data concerning GHG removals according to ESRS.

Source: [Draft] ESRS E1 Climate change.

Financing GHG reduction projects outside the company's value chain by purchasing carbon credits that meet high quality standards can be a useful contribution towards climate change mitigation. Disclosure on the use of carbon credits is made separately from GHG emissions (E1-6) and GHG reduction targets (E1-4). It also requires the company to demonstrate the extent of use and the quality criteria it applies to these emission units. The possible reporting format is shown in Figure 4.

Carbon credits cancelled in the reporting year	Comparative	N
Total (tCO_2eq)	-	
Share from removal projects (%)	-	
Share from reduction projects (%)	-	
Recognised quality standard 1 (%)		
Recognised quality standard 2 (%)	-	
Recognised quality standard 3 (%)	-	
...	-	
Share from projects within the EU (%)		
Share of carbon credits that qualify as corresponding adjustments (%)		

Figure 4. Manner of presentation of data concerning carbon credits according to ESRS.

Source: [Draft] ESRS E1 Climate change.

Internal carbon pricing systems are also disclosed, as well as significant physical and temporary climate-related risks that may affect the company's financial position (e.g. assets held, financially controlled assets and lease liabilities), performance (e.g. potential future

increases/decreases in net revenue and costs due to business interruption, increased supply prices resulting in a potential decrease in margins) and cash flows.

5. Conclusion

The evolution of the approach to non-financial reporting highlights the trend towards measurability, comparability of indicators.

At the same time, accountability for published information is increasing – reported non-financial data will be subject to mandatory auditing and the provision of false data will be subject to criminal and financial liability – including for board members.

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