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ESG REPORTING OF POLISH LISTED COMPANIES ON THE EXAMPLE OF THE ENERGY SECTOR AND THE DEFENCE INDUSTRY

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ABSTRACT: ESG reporting is a key process through which companies provide detailed information regarding their impact on the environment (E), society (S) and corporate governance (G). The aim of the article is to present the authors' research results on the reporting of environmental information in the field of ESG among companies from the energy sector and the defence industry, represented by the example of PIT-RADWAR, listed on the Warsaw Stock Exchange in 2022-2023. The methodology was based on a review of the literature on the subject, legal acts and own research, which used non-financial reports of listed companies regarding ESG information. According to the authors, the article adds value to the literature on the subject, in particular in terms of gathering source material and discussing it. Considering the growing importance of ESG factors in the defence sector, the article also highlights the emerging trend of ESG reporting in this industry using the example of PIT-RADWAR S.A., emphasising its growing importance and the sector's first steps towards increasing the transparency of non-financial reporting. The subject matter of the article can form the basis for further detailed empirical research on ESG reporting.

KEYWORDS: defence industry, energy transformation, ESG, non-financial reporting

Introduction

Today, reporting on the environmental and social impact of business activities is becoming a key element of reporting for any responsible company. Reporting an organisation's impact on the environment, social issues and maintenance of corporate governance – i.e. ESG reporting – requires a responsive attitude on the part of companies, including a willingness to implement appropriate changes in operations. ESG reporting is not only a lot of work but also has a number of benefits for companies.

The term ESG (Environmental, Social, Governance) refers to issues related to the environment, social responsibility and corporate governance. These are key areas of information for any company stakeholder. Its activities in these areas generate significant risks and opportunities and are subject to evaluation by investors and other stakeholders. ESG/sustainability reporting involves companies making information available to stakeholders on environmental, social, employee and corporate governance issues. It is an expression of contemporary changes related to the growing importance of the concept of sustainable economic development (Sustainable Development) and the increasing importance of ESG factors in investment decisions (Sustainable Finance).

ESG reports are already mandatory as of January 1, 2024. The non-financial reporting obligation in 2024 mainly applies to public trust entities (i.e. listed companies, banks, insurance companies, investment funds, etc.) (Zabawa & Łosiewicz-Dniestrzańska, 2023). The ESG concept provides a model to measure and evaluate companies' information sustainability performance:

- Environment – refers to information on: energy consumption, greenhouse gas emissions, waste management, water consumption, etc.;
- Social – focuses on the social and labour relations of the enterprise. Refers to information on: working conditions, diversity and inclusion, customer and supplier relations, employee safety, etc.;
- Governance – deals with the company's governance structure. Includes issues such as the structure of governing bodies, transparency, ethics, application of corporate principles, independence of the board of directors and other aspects related to responsible governance.

The most important Acts within the EU structures that create the regulatory context for the ESG concept include:

- Regulation of the European Parliament and of the Council (EU) 2020/852 of June 18, 2020 on establishing a framework to facilitate sustainable investments, amending Regulation (EU) 2019/2088;
- Regulation of the European Parliament and of the Council (EU) 2019/2088 of November 27, 2019 on disclosure of information related to sustainable development in the financial services sector;
- Directive 2014/95/EU of the European Parliament and of the Council of October 22, 2014 amending Directive 2013/34/EU with respect to the disclosure of non-financial and diversity information diversity by certain large entities and groups;
- Directive of the European Parliament and of the Council (EU) 2022/2464 of December 14, 2022 on the amending Regulation (EU) No. 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU with regard to reporting companies with regard to sustainable development;
- European Sustainability Reporting Standards.

The purpose of this article is to provide an overview of the concept of sustainability, ESG regulation, and the issue of ESG reporting at companies in the energy sector listed on the Warsaw Stock Exchange and the defence industries. The study was conducted to determine whether these companies, including those in the defence sector such as PIT-RADWAR, implemented ESG before January 1, 2024, and to assess the extent of their disclosures. Given the unique considerations surrounding ESG in the defence industry, the study provides insights into how companies like PIT-RADWAR are beginning to engage with sustainability issues and transparency in non-financial reporting.

Literature Review

Climate change reporting is suggested as a mechanism to mitigate the impact of businesses on climate change, particularly carbon emissions (Baboukardos et al., 2024). As highlighted in the literature, achieving the Sustainable Development Goals (SDGs) triggers the development of environmental, social and governance (ESG) principles (Cheema & Langa, 2022). From a macro-level perspective, ESG refers to the assessment of an enterprise's performance in the environmental, social and governance dimensions (Taliento & Netti, 2020). According to stakeholder theory, a company's long-term success (market value, competitiveness) depends on its ability to meet stakeholder expectations (Freeman, 1984). There have already been various initiatives in past practice to encourage companies to disclose their ESG performance, such as the Global Reporting Initiative (GRI) and the United Nations Global Compact (Taliento & Netti, 2020).

According to the authors, in the near future, accounting will play a key role in providing the true and reliable information needed for sustainability reports. Corporate sustainability reporting has already begun to focus on social and environmental issues. ESG is an acronym that appears in a growing number of academic publications. Figure 1 shows the evolution of ESG reporting in Poland.

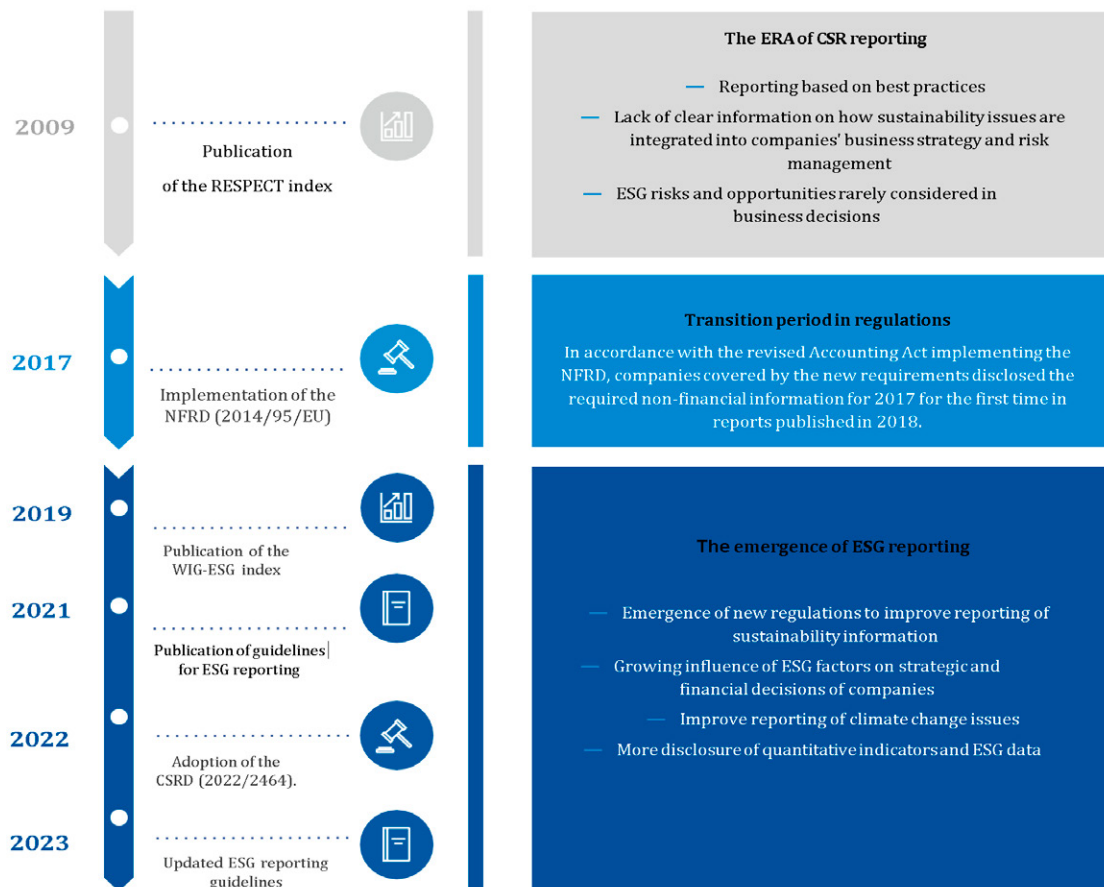


Figure 1. Evolution of ESG reporting in Poland 2009-2023

Source: authors' work based on GPW & European Bank for Reconstruction and Development (2023).

The previously indicated CSRD stipulates that as of January 2024, the non-financial reporting obligation will apply to companies and groups that have so far filed sustainability reports in accordance with the NFRD. These are companies that meet the following criteria:

- public-interest entities with more than 500 employees,
- balance sheet total exceeding 20 million euros, and/or
- annual revenues exceeding 40 million euros.

From January 2025, the non-financial reporting obligation will apply to companies that meet 2 of 3 criteria:

- employment of more than 250 employees,
- a balance sheet total exceeding 25 million euros, and/or
- annual revenues exceeding €50 million.

From January 2026, non-financial reporting obligations will apply to small and medium-sized companies that are listed on a regulated market and meet 2 of 3 criteria:

- employment of more than 10 employees,
- balance sheet total of more than 350 thousand euros, and/or
- annual revenues above 700 thousand euros.

The world is at a crucial juncture in terms of achieving the 17 Sustainable Development Goals (SDGs) adopted by United Nations (UN) member states in 2015 (UN, 2015). The SDGs are based on the Millennium Development Goals established in 2000 and address global challenges in health, education, equality and social justice, economic security and environmental issues (Sullivan et al., 2018). Figure 2 shows The 17 Sustainable Development Goals (SDGs).



Figure 2. The 17 Sustainable Development Goals (SDGs)

Source: authors' work based on <https://sdgs.un.org/goals> [15-11-2024].

As indicated by Krasodomska et al. (2022) the SDGs are not only 17 general goals, but also 169 specific goals. Their implementation by individual countries is verified at three levels (Krasodomska et al., 2022):

- Through a set of global indicators by the UN Statistical Commission.
- At the regional level – in the European Union (EU) – through a set of 100 indicators, monitored by Eurostat to assess progress in achieving the SDGs in member states.
- In addition, UN member governments use their own national metrics for achieving the SDGs. In Poland, this work is coordinated by the Central Statistical Office.

Additional specific steps are being taken within the EU to ensure an even smoother transition to a greener economy. Among the most prominent undertakings in recent years has been the adoption of the European Green Deal program, which aims to achieve climate neutrality by 2050 (Krawczyńska et al., 2024). Many proposed and existing EU policies are aimed at achieving the SDGs, even if they are not explicitly formulated in terms of the Sustainable Development Goals (Krasodomska et al., 2023).

To date, the scope of reporting on the environmental impact of companies, among others, varies within companies. On the one hand, as Rosati and Faria (2019), the voluntary disclosure of sustainability information in accordance with recognized standards, such as GRI, among others, may indicate that companies already have the skills and mindset necessary to include sustainability goals in their reports. On the other hand, it is also worth noting that many companies do not see sustainability policies as an important part of their financial and operational priorities (Sullivan & Kim, 2018).

There are 12 ESRS, covering the full range of sustainability issues, as proposed by EFRAG:

- ESRS E1 Climate change.
- ESRS E2 Pollution.
- ESRS E3 Water and marine resources.
- ESRS E4 Biodiversity and ecosystems.
- ESRS E5 Resource use and circular economy.
- ESRS S1 Own workforce.
- ESRS S2 Workers in the value chain.
- ESRS S3 Affected communities.
- ESRS S4 Consumers and end-users.
- ESRS G1 Business conduct.

Table 1 presents the Environmental Indicators related to climate change, in terms of ESG reporting, and synthesizes the definition of each indicator and the minima of information disclosure.

Table 1. Relevant environmental indicators of ESG reporting

Indicator	Type of indicator (expressed in units of measurement or descriptive)	Definition	The minimum disclosure applies to:
Environmental indicators directly linked to climate change:			
E-P1 Managing climate change issues	Descriptive	In preparing climate-related disclosures, companies should make use of materials such as TCFD recommendations, ESRS standard E1 Climate Change and/or IFRS S2	<ul style="list-style-type: none"> Climate-related disclosures that provide detailed explanations for aspects such as governance, strategy, risk management, and targets and indicators.
E-P2 Greenhouse gas emissions	Tons of CO2 eq.	Greenhouse gas emissions represent the total sum of direct and indirect greenhouse gas emissions. They can be divided into Scope 1, Scope 2 and Scope 3 emissions.	<ul style="list-style-type: none"> Methods and assumptions used in calculating emissions. Scope 1, 2, and 3 emissions (if relevant) for the last 3 years to allow evaluation of the trend over time. A relevant explanation if there has been a significant change in the value of the issue (both increase and decrease). It is recommended that companies use international standards for calculating and disclosing greenhouse gas emissions, such as the GHG Protocol or the ISO 14064-1:2018 standard.
E-P3 Intensity of greenhouse gas emissions greenhouse gases	CO2 eq. tons / revenue	Greenhouse gas intensity is the amount of greenhouse gas emissions per unit of economic activity.	<ul style="list-style-type: none"> Methods and assumptions used in the calculations. The ratio of greenhouse gas emissions intensity to revenue.
E-P4 Energy consumption and its sources	MWh	Energy consumption is the total amount of energy used in an organization. It includes both energy purchased from suppliers and generated internally.	<ul style="list-style-type: none"> Methods and assumptions used in calculating energy consumption. Total energy consumption in the organization (in MWh). Percentage (%) of energy consumed by energy type (i.e., renewable and non-renewable sources, energy).
Environmental indicators on environmental issues other than climate change:			
E-P5 Environmental policy	Policy description	An environmental policy is a formal document that sets out a company's commitments and approach to managing environmental aspects.	<ul style="list-style-type: none"> Has the company adopted an environmental policy. Compliance with relevant environmental laws and regulations. Commitment to manage and mitigate adverse environmental impacts. Implementation of a management system for environmental issues. Monitoring of results. The company's expectations of suppliers and business partners in managing environmental issues.
E-D1 Water consumption	m ³	Water consumption means the total amount (in m ³) of water used in the enterprise.	<ul style="list-style-type: none"> The total amount of water used in the enterprise (in m³). Percentage of water recycled and reused in relation to total water withdrawal.

Indicator	Type of indicator (expressed in units of measurement or descriptive)	Definition	The minimum disclosure applies to:
E-D2 Water resources management	Descriptive	Water stewardship refers to the process a company has implemented to optimize water consumption and thereby minimize its environmental impact. It includes measures to reduce water consumption, increase water circulation (through reuse and recycling) and conserve water resources.	<ul style="list-style-type: none"> Whether the company has adopted and implemented a water management program and what activities comprise it. Companies operating in water-scarce areas should also disclose how they are identifying and mitigating the associated risks.
E-D3 Impact on biodiversity	Descriptive	Biodiversity, according to the United Nations Convention on Biological Diversity, is defined as "a term for the diversity of life forms on Earth in their natural shape and form." It includes species, genetic and ecosystem diversity.	<ul style="list-style-type: none"> Does the company's operations negatively impact biodiversity (directly or indirectly through the supply chain) and what are the main reasons for this. Has the company implemented a policy to protect and restore biodiversity and counter deforestation, and does it extend to suppliers.
E-D5 Waste management	Descriptive	Waste management refers to a range of activities to monitor, manage and reduce waste (including reuse or recycling) generated within a company.	<ul style="list-style-type: none"> Amount of hazardous waste and other waste produced (in tons). Percentage of waste (%) by disposal method (e.g., recycled, landfilled). A description of the measures taken to manage waste and comply with relevant regulations.

Source: authors' work based on International Foundation for Valuing Impacts (2023).

ESG reporting is the provision of information by companies to stakeholders on environmental, social and labour issues and corporate governance. It is an expression of contemporary changes related to the growing importance of the concept of sustainable economic development (Sustainable Development) and the increasing importance of ESG factors in investment decisions (Sustainable Finance).

The basis of the ESG concept was corporate social responsibility (CSR) (Sacconi, 2006; Przychoźeń & Przychoźeń, 2014), but with the difference that the CSR concept focuses on business (Nocoń, 2024). The main benefits of ESG reporting include: (a) increased transparency and accountability, which can help build trust between a company and its stakeholders, (b) Reduced risk, as ESG reporting can help companies identify and manage ESG risks, and (c) improved financial performance by identifying key areas for improvement. Companies that engage in ESG disclosure in developed markets are associated with lower systematic market risk (Sassen et al., 2016). Porter et al. (2019) argue that ESG disclosure is linked to a company's competitive advantage. By engaging in ESG activities, companies can redefine their product offerings in line with society's needs for better environmental protection and quality of life.

Corporate financial reporting and ESG reporting, as the main forms of communicating corporate achievements, are expected to accurately portray all material risks and uncertainties (Zyznarksa-Dworczak, 2022). ESG reporting is also influenced by several community environmental quality problems and the formulation of problems viewed from the perspectives of different stakeholders (Diwekar et al., 2021; Zyznarksa-Dworczak, 2022):

- industry stakeholders, whose primary objective is usually economic optimisation within environmental regulation standards;
- communities, which seek to balance socioeconomic welfare through access to jobs while reducing associated environmental contaminants;
- more affluent communities, which would rather have polluting industries removed or distanced from their communities to optimise environmental quality and public health;
- government agencies, whose primary objective is to administer regulations at the nexus of these competing demands.

Research and results

As part of the empirical chapter, the authors analysed 5 companies in the energy sector listed on the Warsaw Stock Exchange and selected companies serving the defense sector to determine whether they disclosed ESG information in their non-financial reports between 2022 and 2023. The authors also analysed by example PIT-RADWAR, a defence sector high tech company that, although not listed on the Warsaw Stock Exchange, is a pioneer in implementing ESG practices. ESG reporting is emerging as a key tool in the defence industry, where transparency and sustainable practices are increasingly recognised as critical components of responsible operation. An analysis of the reports gives grounds to conclude that most companies have a developed sustainability strategy. In their reports, companies strongly emphasise the environmental impact of their operations.

Tables 2 and 3 present basic financial data describing the economic and financial potential of these entities, which is important due to the environmental impact of their activities, among other business operations, and their market position in the Polish market. Financial data for PIT-RADWAR, however, are not published, as it is not a publicly traded company.

Table 2. Important financial data characterising the analysed companies in the energy sector for 2022-2023

Company	Year's	Sales revenues (in thousands of PLN)	EBITDA (in thousands of PLN)	Balance sheet total (in thousands of PLN)
Polska Grupa Energetyczna SA	2022	73,435,000	8,661,000	105,778,000
	2023	95,964,000	10,024,000	113,443,000
Tauron Polska Energia SA	2022	36,311,000	3,157,000	45,320,000
	2023	42,657,000	6,107,000	49,798,000
ENEA SA	2022	30,076,258	2,163,231	37,434,972
	2023	44,020,952	2,607,599	39,110,745
Polenergia SA	2022	7,089,231	354,024	6,247,334
	2023	5,615,412	543,311	6,711,616
CEZ SA	2022	47,779,010	23,560,470	188,254,600
	2023	57,185,280	20,995,510	140,380,050

Source: authors' work based on PGE S.A. (2023), Tauron S.A. (2023), Enea S.A. (2023), Polenergia S.A. (2023) and CEZ S.A.

Table 3. Significant financial data characterising the analysed armament companies for 2022-2023

Company	Year's	Sales revenues (in thousands of PLN)	EBITDA (in thousands of PLN)	Balance sheet total (in thousands of PLN)
Lubawa SA	2022	332,005	42,519	424,396
	2023	377,613	66,596	560,301
Sundragon SA	2022	34,949	-9,086	38,333
	2023	33,086	3,093	40,800
Zremb-Chojnice SA	2022	33,796	4,666	39,261
	2023	37,041	5,344	44,079
Protektor SA	2022	100,361	9,374	98,958
	2023	99,814	3,110	82,802
Wojas SA	2022	331,452	68,630	296,919
	2023	408,070	61,055	283,776

Source: authors' work based on the consolidated financial statements of the analysed companies, data available on their websites.

Table 4 and 5 presents, in summary, the results of the authors' research on the reporting by the companies in the research sample of the value of environmental indicators directly related to climate change (E-P1 – E-P4).

Table 4. Values of environmental indicators directly related to climate change reported by companies in the energy sector for 2022-2023

Company	Year's	E-P1 Managing climate change issues	E-P2 Greenhouse gas emissions CO2 eq. tons / revenue	E-P3 Intensity of green- house gas emissions greenhouse gases	E-P4 Energy consumption and its sources MWh
Polska Grupa Energetyczna SA	2022	YES	70,010,418	0.95	298,775,987
	2023	YES	56,950,618	0.59	372,140,346
Tauron Polska Energia SA	2022	YES	32,434,000	0.89	136,292,099
	2023	YES	18,516,000	0.43	106,473,431
ENEA SA	2022	YES	42,649,027	1.42	2,819,327
	2023	YES	45,243,781	1.03	2,483,147
Polenergia SA	2022	YES	69,493	0.01	-
	2023	YES	98,894	0.02	-
CEZ SA	2022	YES	-	-	-
	2023	YES	-	-	-

Source: authors' work based on PGE S.A. (2023), Tauron S.A. (2023), Enea S.A. (2023), Polenergia S.A. (2023) and CEZ S.A.

Table 5. Values of environmental indicators directly related to climate change reported by companies serving the military sector for 2022-2023

Company	Year's	E-P1 Managing climate change issues	E-P2 Greenhouse gas emissions CO2 eq. tons / revenue	E-P3 Intensity of green- house gas emissions greenhouse gases	E-P4 Energy consumption and its sources MWh
PIT-RADWAR SA	2022	YES	-	-	-
	2023	YES	-	-	-
Lubawa SA	2022	YES	-	-	0,000038 (MWh/PLN)
	2023	YES	-	-	-
Sundragon SA	2022	YES	-	-	-
	2023	YES	-	-	-
Zremb-Chojnice SA	2022	YES	-	-	-
	2023	YES	-	-	-
Protektor SA	2022	YES	-	-	-
	2023	YES	-	-	-
Wojas SA	2022	YES	-	-	-
	2023	YES	-	-	-

Source: authors' work based on ESG reports and websites.

In terms of disclosures regarding the management of climate change issues (E-P1), each company indicated that it undertakes such activities internally, both companies in the energy industry and those working with the military sector, among other information on their websites, indicated this scope as part of their management activities.

Regarding greenhouse gas emissions disclosures (E-P2), companies in the energy sector made quantitative disclosures of Scope 1 and 2 emissions, as well as Scope 3. The main CO₂ mitigation measures these companies are taking include: reducing energy consumption, reducing water consumption, sustainable energy consumption, waste management and new energy-saving investments. Companies working with the military sector did not make quantitative disclosures in this regard. It should be noted that they did not have such obligations during the years of the analysis, but nevertheless one sees attention being paid to this issue on websites and in statements by the board of directors, which should be viewed positively.

As for greenhouse gas emission intensity (E-P3), companies in the energy sector made disclosures in this regard for 2022-2023. In contrast, companies cooperating with the energy industry did not make quantitative disclosures, as they were not required to do so.

Regarding the disclosure of information on energy consumption (E-P4), not all companies in the energy sector made quantitative disclosures. Polenergia SA and CEZ SA, did not make such disclosures. Within the companies cooperating with the armaments sector, LUBAWA SA, which disclosed quantitative data, should be rated very highly in this regard. The remaining companies did not make disclosures, which they were also not obliged to do.

Table 6 and 7 shows, in summary, the authors' findings on the reporting of environmental information on other environmental issues by the companies in the research sample (E-P5, E-D1, E-D2, E-D3, E-D5).

Table 6. Values of environmental indicators in relation to other environmental issues within energy companies for 2022-2023

Company	Year's	E-P5 Environmental policy	E-D1 Water consumption	E-D2 Water resources management	E-D3 Impact on biodiversity	E-D5 Waste management
Polska Grupa Energetyczna SA	2022		804,740			
	2023		738,839			
Tauron Polska Energia SA	2022		69,745,441			
	2023		35,619,935			
ENEA SA	2022		2,942,127			
	2023		2,490,594			
Polenergia SA	2022		-			
	2023		-			
CEZ SA	2022		-			
	2023		-			

Source: authors' work based on PGE S.A. (2023), Tauron S.A. (2023), Enea S.A. (2023), Polenergia S.A. (2023) and CEZ S.A.

Table 7. Values of environmental indicators in relation to other environmental issues in companies serving the military sector in 2022-2023

Company	Year's	E-P5 Environmental policy	E-D1 Water consumption	E-D2 Water resources management	E-D3 Impact on biodiversity	E-D5 Waste management
PIT-RADWAR SA	2022		-		-	
	2023		-		-	
Lubawa SA	2022		-		-	
	2023		-		-	
Sundragon SA	2022		-		-	
	2023		-		-	

Company	Year's	E-P5 Environmental policy	E-D1 Water consumption	E-D2 Water resources management	E-D3 Impact on biodiversity	E-D5 Waste management
Zremb-Chojnice SA	2022		-		-	
	2023		-		-	
Protektor SA	2022		-		-	
	2023		-		-	
Wojas SA	2022		-		-	
	2023		-		-	

Source: authors' work based on ESG reports and websites.

Regarding disclosures on environmental policy management (E-P5), each company indicated that it had implemented such a policy. Both companies in the energy sector and those working with the defence sector reported on environmental policies through information on their websites. PIT-RADWAR, although not listed on the Warsaw Stock Exchange, is notable as a defence sector company that has also begun integrating ESG practices into its policies, signalling an awareness of the importance of environmental responsibility in the defence industry.

As for water consumption disclosures (E-D1), based on the analysis, all companies analysed did not show quantitative disclosures in this regard, and PIT-RADWAR did not provide any information on this indicator. Regarding disclosures on water management (E-D2), every company indicated that it was taking measures in this regard. For most companies, the description was at a general level, and only a few companies (e.g., Tauron SA) described the issue in a comprehensive manner with detailed references.

Regarding the impact on biodiversity (E-D3), companies in the energy sector indicated in their reports that they were taking action in this regard, although for most, the description was general. However, PIT-RADWAR did not report any disclosures regarding biodiversity impact.

For waste management (E-D5), companies in the energy sector indicated that they were taking action in this area, generally at a broad level. Companies working with the defence sector, including PIT-RADWAR, which can be taken as a lider, also disclosed waste management activities but similarly provided only general information.

PIT-RADWAR's engagement with ESG practices highlights the importance of sustainability initiatives within the defence sector. As an industry traditionally focused on national security and operational effectiveness, the defence sector's integration of ESG principles – especially in areas like environmental responsibility – represents a shift towards greater transparency and accountability, positioning ESG as a vital component of responsible industry practices.

Conclusions

Reporting ESG data and environmental indicators is of great importance to companies' stakeholders today. Reporting information on, among other things, the carbon footprint or CO₂ emissions brings measurable benefits to the company, which can be divided into three categories: environmental, economic and image-related. Taking into account the current policy of the European Union, the provision by companies of comprehensive and factual information on their environmental impact enables them to access EU financing tools (taxonomy).

The study conducted by the authors had a cognitive aspect. The conclusions formulated as a result of the analysis carried out in this article allow us to state that the companies in the analysed sample, despite the lack of mandatory requirements for reporting ESG information and indicators in 2022-2023, in the vast majority presented such data in their non-financial reports, with companies from the energy sector showing a fairly large scope of quantitative and qualitative disclosures. Companies cooperating with the military sector mostly did not publish ESG reports, and obtained information on the analysed disclosures from their websites or reports. Nevertheless, it should be noted

that despite the lack of mandatory ESG reporting in the analysed years, the level of information provided should be considered quite high.

In the authors' opinion, this may indicate that company management is highly aware of the need for external stakeholders to be informed about the company's impact on the environment. In addition, ESG reporting can translate into environmental, economic and reputational benefits. Standardisation of regulations in this area is also important.

The contribution of the authors

Conception, B.W., J.P., A.S. and M.B.; literature review, B.W., J.P., A.S. and M.B.; acquisition of data, B.W., J.P., A.S. and M.B.; analysis and interpretation of data, B.W., J.P., A.S. and M.B.

References

- Baboukardos, D., Kopita, A., Ranegaard, Ch., & Demetriades, E. (2024). Carbon reporting regulation: Real effects, external pressures, and internal policies. *Business Strategy and The Environment* 33(5), 1-16. <https://doi.org/10.1002/bse.3726>
- CEZ S.A. (2023), CEZ Group Annual Financial Report 2023. <https://www.cez.cz/en/investors/financial-reports/annual-reports>
- CEZ S.A. (2023), CEZ Group Sustainability Report 2023. <https://www.cez.cz/webpublic/file/edee/esg/documents/sustainability-reports/zour-2023-en.pdf>
- Cheema, S., & Langa, M. (2022). Environment, Social, and Governance (ESG) and Sustainability. In S. Cheema & M. Langa (Eds.), *A Director's Guide to Governance in the Boardroom* (pp. 135-171). New York: Routledge.
- Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting, Pub. L. No. 32022L2464, 322 OJ L (2022). <http://data.europa.eu/eli/dir/2022/2464/oj>
- Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups Text with EEA relevance, Pub. L. No. 32014L0095, 330 OJ L (2014). <http://data.europa.eu/eli/dir/2014/95/oj>
- Diwekar, U., Amekudzi-Kennedy, A., Bakshi, B., Baumgartner, R., Boumans, R., Burger, P., Cabezas, H., Egler, M., Farley, J., Fath, B., Gleason, T., Huang, Y., Karunanithi, A., Khanna, V., Mangan, A., Mayer, A., Mukherjee, R., Mullally, G., Rico-Ramirez, V., Shonnard, D., Svanström, M., & Theis, T. (2021). A perspective on the role of uncertainty in sustainability science and engineering. *Resources, Conservation and Recycling*, 164, 105140. <https://doi.org/10.1016/J.RESCONREC.2020.105140>
- ENEA S.A. (2023). *Skonsolidowany raport roczny SRR za 2023 r.* <https://ir.enea.pl/lista-raportow/kategoria/3612/raporty-okresowe> (in Polish).
- ENEA S.A. (2023). *Raport ESG Grupy Kapitałowej ENEA za 2023 r.* <https://raport2023.esg.enea.pl/>
- Freeman, R. E. (1984). *Strategic Management. A Stakeholder Approach*. Boston: Pitman.
- GPW & European Bank for Reconstruction and Development. (2023). *Wytyczne do raportowania ESG. Przewodnik dla spółek*. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiW07TtwZCjAxUvBNsEHQ11OkMQFnoECA8QAQ&url=https%3A%2F%2Fwww.gpw.pl%2Fpub%2FGPW%2FESG%2FWytyczne_do_raportowania_ESG.pdf&usg=AOvVaw3TScr7wSeMYGFgtii mOYHg&opi=89978449 (in Polish).
- International Foundation for Valuing Impacts (2024). *Environmental Methodology 1. Greenhouse Gas Emissions. Topic Methodology (Exposure Draft)*. <https://ifvi.org/>
- Krasodomska, J., Zarzycka, E., & Dobija, D. (2022). Factors that determine companies' reporting of information on actions towards achieving the Sustainable Development Goals. *Zeszyty Teoretyczne Rachunkowości*, 46(3), 99-118. <http://dx.doi.org/10.5604/01.3001.0015.9599>
- Krasodomska, J., Zieniuk, P., & Kostrzewska, J. (2023). Reporting on Sustainable Development Goals in the European Union: what drives companies' decisions? *An International Business Journal*, 33(1), 120-146. <https://www.emerald.com/insight/content/doi/10.1108/CR-12-2021-0179/full/html>
- Krawczyńska, D., Hadasik, B., Ryczko, A., Przedworska, K., & Kubiczek, J. (2024). Pursuing european green deal milestones in times of war in Ukraine – a context of energy transition in Poland. *Economics and Environment*, 88(1), 1-15. <https://doi.org/10.34659/eis.2024.88.1.736>
- Lubawa S.A. (2023). *Skonsolidowane sprawozdanie finansowe za okres od 1 stycznia do 31 grudnia 2023 r.* https://lubawagroup.com/raporty_okresowe/raporty-okresowe-2023/

- Lubawa S.A. (2023). Raport zrównoważonego rozwoju Grupy Kapitałowej Lubawa za 2023 r. https://lubawagroup.com/wp-content/uploads/2023/01/Raport_Zrownowazonego_Rozwoju_Grupy_Kapitalowej_Lubawa_za_2023r.pdf
- Nocoń, A. (2024). ESG Risk Management in Banks – Towards its Measurement. *Economics and Environment*, 90(3), 737. <https://doi.org/10.34659/eis.2024.90.3.737>
- PGE S.A. (2023). *Skonsolidowane sprawozdanie finansowe Grupy PGE SA za rok 2023*. <https://www.gkpge.pl/dla-inwestorow/akcje/dane-finansowe> (in Polish).
- PGE S.A. (2023). Integrated Report 2023. <https://raportzintegrowany2023.gkpge.pl/en/>
- PIT-RADWAR (2023). Skonsolidowane roczne sprawozdanie finansowe za 2023 r. <https://www.imsig.pl/krs/0000297470/sprawozdania>
- Polenergia S.A. (2023). *Raport okresowy roczny skonsolidowany za 2023 r.* <https://www.polenenergia.pl/serwis-relacji-inwestorskich/raporty/raporty-okresowe/?rok=2024> (in Polish).
- Polenergia S.A. (2023). Sprawozdanie o zrównoważonym rozwoju Grupy Polenergia za 2023 r. <https://esg.polenenergia.pl/2023/>
- Porter, M., Serafeim, G., & Kramer, M. (2019). *Where ESG fails*. <https://www.institutionalinvestor.com/article/2bswdin8nvg922puxdzwg/opinion/where-esg-fails>
- Protektor S.A. (2023). Roczne skonsolidowane sprawozdanie finansowe Grupy Kapitałowej Protektor za okres 01.01.2023 – 31.12.2023. <https://www.protektorsa.pl/raporty/okresowe/?y=2024>
- Przychodzeń, W., & Przychodzeń, J. (2014). Corporate Social Responsibility for Sustainability. *Central European Management Journal*, 22(2), 80-97. <https://doi.org/10.7206/mba.ce.2084-3356.100>
- Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector, Pub. L. No. 32019R2088, 317 OJ L (2019). <http://data.europa.eu/eli/reg/2019/2088/oj>
- Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088, Pub. L. No. 32020R0852, 198 OJ L (2020). <http://data.europa.eu/eli/reg/2020/852/oj>
- Rosati, F., & Faria, L. G. (2019). Business contribution to the Sustainable Development Agenda: Organizational factors related to early adoption of SDG reporting. *Corporate Social Responsibility and Environmental Management*, 26(3), 588-597. <https://doi.org/10.1002/csr.1705>
- Sacconi, L. (2006). A Social Contract Account for CSR as an Extended Model of Corporate Governance (I): Rational Bargaining and Justification. *Journal of Business Ethics*, 68, 259-281. <https://doi.org/10.1007/s10551-006-9014-8>
- Sassen, R., Hinze, A. K., & Hardeck, I. (2016). Impact of ESG factors on firm risk in Europe. *Journal of Business Economics*, 86(8), 867-904. <https://doi.org/10.1007/s11573-016-0819-3>
- Sullivan, K., Thomas, S., & Rosano, M. (2018). Using industrial ecology and strategic management concepts to pursue the Sustainable Development Goals. *Journal of Cleaner Production*, 174, 237-246. <https://doi.org/10.1016/j.jclepro.2017.10.201>
- Sullivan, Y., & Kim, D. (2018). Assessing the Effects of Consumers' Product Evaluations and Trust on Repurchase Intention in e-Commerce Environments. *International Journal of Information Management*, 39, 199-219. <https://doi.org/10.1016/j.ijinfomgt.2017.12.008>
- Sundragon S.A. (2023). Roczne sprawozdanie Emitenta za rok obrotowy 2023 Sundragon Spółka Akcyjna. <https://sundragon.pl/relacje-inwestorskie/>
- Taliento, M., & Netti, A. (2020). Corporate Social/Environmental Responsibility and Value Creation: Reflections on a Modern Business Management Paradigm. *Business Ethics and Leadership*, 4(4), 123-131. [https://doi.org/10.21272/bel.4\(4\).123-131.2020](https://doi.org/10.21272/bel.4(4).123-131.2020)
- Tauron S.A. (2023). *Skonsolidowany raport roczny za 2023 r.* <https://www.tauron.pl/tauron/relacje-inwestorskie/raporty-okresowe> (in Polish).
- Tauron S.A. (2023). Raport zrównoważonego rozwoju za 2023 r. <https://www.tauron.pl/tauron/o-tauronie/tauron-dla-otoczenia/raport-zrownowazonego-rozwoju>
- UN. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015*. https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf
- UN. (2024, November 15). *The 17 goals*. <https://sdgs.un.org/goals>
- UNEP. (n.d.). *European Sustainability Reporting Standards*. <https://www.unepfi.org/impact/interoperability/european-sustainability-reporting-standards-esrs/>
- Wojas S.A. (2023). Raport roczny skonsolidowany za 2023 r. https://www.ri.wojas.pl/index.php/RelacjeInwestorskie/Raporty/Okresowe/Status_3.html
- Zabawa, J., Łosiewicz-Dniestrzańska, E., (2023). GRI (Global Reporting Initiative) as a Reporting Standard of Non-Financial Information in the Area of ESG (Environmental, Social, Corporate Governance). The Case of Banks Listed on the Warsaw Stock Exchange. *Journal of Finance and Financial Law* (2), 7-25. <https://doi.org/10.18778/2391-6478.S2.2023.01>

- Zremb Chojnice S.A. (2023), Sprawozdanie finansowe za rok 2023. <https://zrembchojnice.pl/index.php/relacje-inwestorskie/raporty-okresowe-2023/>
- Zyznarska-Dworczak, B. (2022). Financial and ESG reporting in times of Uncertainty. *The Theoretical Journal of Accounting*, 46(4), 162. <https://doi.org/10.5604/01.3001.0016.1307>

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RAPORTOWANIE ESG POLSKICH SPÓŁEK GIEŁDOWYCH NA PRZYKŁADZIE SEKTORA ENERGETYCZNEGO I PRZEMYSŁU OBRONNEGO

STRESZCZENIE: ESG jest kluczowym procesem, w ramach którego spółki dostarczają szczegółowych informacji dotyczących ich wpływu na środowisko (E), społeczeństwo (S) i ład korporacyjny (G). Celem artykułu jest przedstawienie wyników badań autorów dotyczących raportowania informacji środowiskowych w zakresie ESG wśród spółek z sektora energetycznego i przemysłu obronnego, reprezentowanych na przykładzie PIT-RADWAR, notowanych na Giełdzie Papierów Wartościowych w Warszawie w latach 2022-2023. Metodologia została oparta na przeglądzie literatury przedmiotu, aktów prawnych oraz badaniach własnych, w których wykorzystano raporty niefinansowe spółek giełdowych w zakresie informacji ESG. Zdaniem autorów artykuł wnosi wartość dodaną do literatury przedmiotu, w szczególności w zakresie zebrania materiału źródłowego i jego omówienia. Biorąc pod uwagę rosnące znaczenie czynników ESG w sektorze obronnym, w artykule zwrócono również uwagę na pojawiający się trend raportowania ESG w tej branży na przykładzie PIT-RADWAR S.A., podkreślając jego rosnące znaczenie oraz pierwsze kroki sektora w kierunku zwiększenia transparentności raportowania pozafinansowego. Tematyka artykułu może stanowić podstawę do dalszych szczegółowych badań empirycznych nad raportowaniem ESG.

SŁOWA KLUCZOWE: ESG, raportowanie informacji środowiskowych, sektor obronny, transformacja energetyczna