Adam **LULEK** • Beata **SADOWSKA** • Robert **WALASEK** • Zdenek **BRABEC**

# THE IMPACT OF ENERGY COMPANIES ON THE ENVIRONMENT AND LOCAL COMMUNITIES – DISCLOSURES IN NON-FINANCIAL REPORTS OF COMPANIES

Adam **Lulek** (ORCID: 0000-0001-6709-1291) – *Institute of Management, Department of Economics and Financial Management, Pomeranian University in Słupsk*

Beata **Sadowska** (ORCID: 0000-0003-4190-9440) – *Department of Accounting, Faculty of Economics, Finance and Management, University of Szczecin*

Robert **Walasek** (ORCID: 0000-0002-8613-8187) – *Faculty of Management, Department of Logistics, University of Lodz*

Zdenek **Brabec** (ORCID: 0000-0002-3134-7432) – *Faculty of Economics, Department of Finance and Accounting, Technical University of Liberec*

Correspondence address:
Bohaterow Westerplatte Street 64, 76-200 Slupsk, Poland
e-mail: adam.lulek@upsl.edu.pl

ABSTRACT: Energy companies recognise the impact of their activities on the environment and society and undertake various initiatives to reduce emissions, improve energy efficiency, protect biodiversity, and support the development of local communities. However, the degree and way this information is disclosed varies by company, market and region. The aim of the article is to indicate (1) how information about the natural environment and local communities is presented in annual reports (2) to indicate the frequency of occurrence of the keywords: environment, community, and responsibility in annual reports. The article emphasises the importance of transparent and comprehensive corporate reporting, which reflects the involvement of energy companies in broadly understood sustainable development (impact on the environment and local communities), which can increase stakeholder trust. The study fits into the current scientific discussion on the issues of the European Green Deal. It also implies that better reporting can facilitate investment decisions and that companies should be more forthcoming about their environmental and social initiatives.

KEYWORDS: energy companies, environment, local communities financial reports

## Introduction

The development of reporting towards presenting comprehensive and reliable information related to environmental and social aspects forced the development of standards, norms, guidelines, and recommendations for social responsibility reporting by numerous organisations (Sadowska et al., 2023). Particular attention should be paid to (1) environmental issues, including information on the current and projected impact of economic operators' activities on the environment and, where appropriate, on health and safety, energy use, air pollution; (2) social issues including, but not limited to, information on actions taken to ensure appropriate working conditions, social dialogue or actions taken to ensure the protection and development of these communities (Sadowska, 2016).

These activities are reflected in accounting systems, are often measured and valued, and are then disclosed in financial and non-financial reports (Dyduch, 2015).

The energy policy of a country and enterprises operating in its territory should be conducted in such a way that its effect is (Bartoszewicz & Szczepankiewicz, 2022):

- improving energy efficiency,
- increased security of fuel and energy supplies,
- diversification of the electricity generation structure by introducing nuclear energy,
- development of the use of renewable energy sources, including biofuels,
- reducing the impact of energy on the environment,
- introducing new solutions, for example, photovoltaics (Czepło & Borowski, 2024) and clean hydrogen (Borowski & Karlikowska, 2023).

The aim of the article is a comparative analysis of the annual reports for 2022 of the ten largest energy companies in the world in terms of market capitalisation. The study triangulated research methods and data. The research used both quantitative and qualitative approaches. Secondary sources were analysed, primary quantitative research was conducted, and as a result of the analysis of the observed phenomena, the results were synthesised. The paper also cites recent studies on non-financial disclosures, CSR, and the energy sector's role in sustainable development (Horobet et al., 2022; Li et al., 2022; Kaczmarek et al., 2022; Berniak-Woźny & Wójcik-Jurkiewicz, 2022; Hassan et al., 2021).

## Methodology

The article uses the content analysis method to identify and compare keywords and phrases related to environmental protection and its impact on local communities in the annual reports of energy companies. The authors relied on descriptive and qualitative data collected from the financial statements of selected companies for 2022. This information was supplemented with data contained on the companies' websites. The article calculated the frequency and density of three words in reports: environment, community, and responsibility. The following methods were used when writing the article: induction (some statements were made based on observations and research), deduction (proving the general theory of the article), descriptive analysis (based on financial statements) and comparative analysis.

## Results

Annual reports should include non-financial information on corporate social responsibility, especially in the case of energy companies (Dumitru et al., 2017). These enterprises pose a high environmental risk, and their activities are connected with the exploration, transport and storage of "environmentally unfriendly" products. They also carry a risk of unexpected events which a management board is not always able to predict (Horbet et al., 2022). The stakeholders of the reports should be aware of the risk of polluting their local environment and what the company is doing to protect local communities; publishing Corporate Social Responsibility information is therefore very important to them (Hassan et al., 2021). This is why users of such reports should read about the activities a company undertakes for local communities and environmental protection. In this situation, a question

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arises – do energy companies inform the users of these reports about corporate social responsibility in a proper and sufficient manner (Hońko, 2014)?

This can be verified when analysing the reports of energy companies; the key to the selection of these reports was the companies' market capitalisation on the world's stock exchanges.

The capitalisation of the 10 largest energy companies at the beginning of 2023 was as follows:

- Saudi Aramco – 1.933t USD,
- Exxon Mobil – 468.70b USD,
- Chevron – 349.66b USD,
- Shell – 202.4b USD,
- Total Energies – 158.11b USD,
- Conoco Phillips – 148.04b USD,
- Petro China – 136.40b USD,
- BP – 106.52b USD,
- TAQA – 105b USD,
- Equinor – 95.35b USD.

**Table 1.** The 10 largest energy companies in terms of capitalisation and their characteristics

| Name of the company | Specification |
|---|---|
| Saudi Aramco | Saudi Aramco is known of being the world's largest oil producer and the most profitable company. Its primary operations involve extracting oil from the ground and supplying it to the global export market, with major customers. |
| ExxonMobil | ExxonMobil stands as the leading publicly traded global enterprise in the oil and gas sector, employing technology and innovation to address the increasing energy demands of the world. "We hold an industry-leading inventory of resources and are one of the world's largest integrated refiners, marketers of petroleum products and chemical manufacturers". |
| Chevron | Chevron Corporation, based in San Ramon, California, USA, is a prominent multinational energy company with a global presence. It stands among the largest integrated energy firms globally, engaging in comprehensive activities within the energy sector. This includes participating in exploration, production, refining, and the marketing of both oil and natural gas. |
| Shell | Shell, formally known as Royal Dutch Shell, is a prominent global energy company with operations spanning various facets of the energy industry. It is involved in multiple stages of the energy value chain, encompassing exploration, production, refining, distribution, and marketing. |
| Total Energies | Total stands as one of the largest global entities in the oil and gas industry, and it also plays a significant role as an integrated participant in low-carbon energy initiatives. With an extensive history spanning nearly a century, the company engages in exploration, extraction, and conversion processes. |
| Conoco Phillips | Conoco Phillips is a significant energy company involved in various aspects of the energy sector. Operating globally, the company engages in exploration, production, refining, and distribution of oil and natural gas. It also invests in renewable energy sources, demonstrating a commitment to cleaner and more sustainable energy solutions. |
| PetroChina | PetroChina is a major energy company with a notable presence in various facets of the energy sector. Globally operational, the company is actively engaged in exploration, production, refining, and distribution of oil and natural gas. Additionally, PetroChina is involved in the exploration of renewable energy sources, showcasing a commitment to cleaner and more sustainable energy solutions. |
| BP | BP (British Petroleum) is a major energy company involved in diverse aspects of the energy sector. With a global presence, BP engages in exploration, production, refining, and distribution of oil and natural gas. The company also invests in renewable energy sources, reflecting a commitment to sustainable and cleaner energy solutions. |
| TAQA | TAQA is an energy company engaged in diverse aspects of the energy sector. Operating globally, the company is actively involved in exploration, production, refining, and distribution of oil and natural gas. TAQA also invests in renewable energy sources, emphasizing a commitment to cleaner and more sustainable energy solutions. |
| Equinor | Equinor is a major energy company actively involved in various aspects of the energy sector. Operating globally, the company engages in exploration, production, refining, and distribution of oil and natural gas. Additionally, Equinor is committed to investing in renewable energy sources, underscoring its dedication to cleaner and more sustainable energy solutions. |

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**Table 2.** The impact of individual companies' activities on the environment

| Name of the company | Specification |
|---|---|
| Saudi Aramco | The company is aware of the environmental impacts of its operations and is committed to reducing them. Some of the ways that Saudi Aramco pollutes the environment are:<br>• Extracting crude oil releases natural gas, which can be flared or vented, releasing carbon dioxide and other pollutants into the atmosphere.<br>• Producing and refining oil and gas products generates greenhouse gas emissions, such as carbon dioxide and methane, which contribute to climate change.<br>• Generating and consuming energy from fossil fuels increases the demand for water and produces wastewater, which can affect the quality and availability of freshwater resources.<br>• Handling and disposing of industrial waste, such as oil spills, can harm the biodiversity and ecosystems of land and marine habitats. |
| ExxonMobil | Some of the ways that ExxonMobil pollutes the environment are:<br>• Greenhouse gas emissions – ExxonMobil's operations emit greenhouse gases such as carbon dioxide and methane, which contribute to climate change.<br>• Plastics waste – the company produces and uses plastics, which can end up as waste in landfills, oceans, and other ecosystems.<br>• Water consumption and discharge – the entity consumes and discharges water in its operations, which can affect the availability and quality of water resources for other users and the environment.<br>• Air pollutants – ExxonMobil's operations emit air pollutants such as sulfur dioxide, nitrogen oxides, and volatile organic compounds, which can harm human health and the environment. |
| Chevron | Chevron pollutes the environment in different ways:<br>• Greenhouse gas emissions – company's operations emit greenhouse gases such as carbon dioxide and methane, which contribute to climate change. Chevron's operations emit air pollutants such as sulfur dioxide, nitrogen oxides, and volatile organic compounds, which can harm human health and the environment.<br>• Generating waste – Chevron produces and uses plastics, which can end up as waste in landfills, oceans, and other ecosystems. |
| Shell | Shell impacts the environment is several ways:<br>• The company emits carbon due to their operations.<br>• Greenhouse gas emissions.<br>• Shell has been accused of greenwashing, as it invests less in renewable energy than it claims and continues to explore new oil and gas projects that are incompatible with net zero emissions.<br>• The company has faced legal and social backlash for causing environmental and human rights violations in various regions, such as the Ecuadorian Amazon, the Niger Delta, and the Arctic. |
| Total Energies | Total Energies can have a negative impact on the environment due to its operations:<br>• Atmospheric Emissions – Total Energies operations result in the emission of pollutants into the atmosphere. These emissions can contribute to air pollution and climate change.<br>• Resource Use – the extraction and production of energy resources can lead to the consumption of large amounts of water and soil. This can put pressure on these resources and potentially lead to their depletion.<br>• Biodiversity Loss – despite efforts to minimize damage to biodiversity and ecosystems, Total Energies operations can still lead to habitat destruction and species loss.<br>• Waste Generation – Total Energies operations generate waste, which needs to be managed and disposed of properly to prevent environmental contamination. |
| ConocoPhillips | Conoco Phillips pollutes the environment in different ways, for example:<br>• Land or Sea-Use Change – Conoco Phillips' activities and operations can directly or indirectly contribute to nature impact drivers, including land or sea-use change. This can result in habitat disturbance, reduced habitat intactness, and impacts on species distribution.<br>• Biodiversity Loss – despite efforts to minimize damage to biodiversity and ecosystems, Conoco Phillips' operations can still lead to habitat destruction and species loss. For example, in the Bakken area of North Dakota, they aim to design their footprint to balance protection of the existing ecosystem with current and future land uses near their operations.<br>• Waste Generation – ConocoPhillips' operations generate waste, which needs to be managed and disposed of properly to prevent environmental contamination. |

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| Name of the company | Specification |
|---|---|
| PetroChina | PetroChina as other companies pollutes the environment for example:<br>• The company has been involved in several oil spills and leaks that have contaminated sea water and soil. For instance, in 2010, PetroChina's pipeline exploded in Dalian, causing over 1,500 tons of crude oil to spill into the Yellow Sea.<br>• PetroChina is one of the world's largest producers of greenhouse gas emissions, mainly from its oil and gas operations. In 2021, PetroChina emitted about 260 million tons of carbon dioxide, which accounted for 76% of its total GHG emissions. |
| BP | BP acknowledges that its operations and products emit greenhouse gases that contribute to climate change. BP reports that its total net equity greenhouse gas emissions in 2022 were 360 million tons of CO2 equivalent. BP also faces environmental challenges such as managing water use and effluent discharge, preventing oil spills and leaks, and restoring biodiversity and ecosystems where it operates. The company has been involved in some major environmental incidents, such as the Deepwater Horizon oil spill in 2010, which caused extensive damage to marine life and coastal habitats in the Gulf of Mexico. |
| TAQA | TAQA as all other companies knows its problem of greenhouse gas emissions. The company also recognizes that its activities have other environmental impacts, such as other air emissions, water consumption, waste generation, and land use. TAQA reports that its total greenhouse gas emissions in 2022 were 18.9 million tons of CO2 equivalent. The company also faces environmental challenges such as managing water scarcity and quality, preventing spills and leaks, and enhancing biodiversity and ecosystem services where it operates. |
| Equinor | Equinor acknowledges that its operations have an impact on the environment in some ways:<br>• Discharges of Produced and Processed Water to Sea – This is a significant environmental aspect to manage as it can potentially harm marine life.<br>• Spills – Any accidental spillage of oil or other substances can have detrimental effects on the environment.<br>• Drilling Waste – waste from drilling operations needs to be managed properly to prevent environmental contamination.<br>• NOx Emissions – These emissions from power and heat generation at many installations, plants, and drilling rigs contribute to air pollution.<br>• SOx Emissions – Emissions from refineries, drilling rigs, and some offshore installations also contribute to air pollution.<br>• Greenhouse Gas Emissions – In 2022, Equinor's total scope 1 and 2 GHG emissions were 11.4 million tons $CO_2$ |

Source: authors' work based on BP (2023, 2024), Chevron (2023, 2024), Conoco Phillips (2023, 2024), Equinor (2023, 2024), ExxonMobil (2023, 2024), PetroChina (2023, 2024), Saudi Aramco (2022, 2024), Shell (2022, 2024), TAQA (2022, 2024) and Total Energies (2022, 2024).

It's important to highlight that, as part of their operational activities, all the analysed companies significantly contribute to environmental pollution. Their influence on the natural environment is immeasurable and invaluable (Li et al., 2022). Recognising the adverse ecological effects, the management boards of the world's leading energy companies are conscious of the situation. Consequently, these entities strive to engage in various activities aimed at minimising the negative impact on the surrounding environment (Rasche et al., 2017). These initiatives are broadly described in Table 3. They should include:

- Adoption of renewable energy and overall energy consumption reduction,
- Biodiversity preservation,
- Improved water and sewage management,
- Implementation of recycling practices,
- Decreasing $co_2$ emissions,
- Minimisation of sewage and waste emissions,
- Restriction of raw material consumption,
- Alterations in the production processes,
- Utilisation of safer materials,
- Attainment of ISO certificates.

Moreover, there is a drive towards innovation in corporate energy management to enhance efficiency and reduce energy consumption, emphasising the importance of sustainable practices and the adoption of green investments (Vaníčková, 2020).

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**Table 3.** Selected activities of the analysed companies to protect the natural environment

| Name of the company | Specification |
|---|---|
| Saudi Aramco | • Saudi Aramco underlines its commitment to a practical, stable, and inclusive energy transition, through investments in energy efficiency, carbon absorption, utilization and storage, carbon offsets and renewable energy sources.<br>• Creation of a $1.5 billion sustainable fund to invest in technologies supporting energy transitions.<br>• Obtaining the ISCC+ certificate for the joint plastic waste recycling initiative with SATORP.<br>• Support for the Saudi Green Initiative and the Middle East Green Initiative, which aim to reforestation and develop clean energy in the region.<br>• Delivered the world's first accredited commercial shipment of low-emission blue ammonia to South Korea in partnership with SABIC Agri-Nutrients. |
| ExxonMobil | • ExxonMobil designs, engineers, builds, and operates its facilities to withstand a variety of extreme climatic and other conditions, taking into account changing weather conditions and safety factors. The company also employs rigorous disaster preparedness, response, and business continuity plans.<br>• ExxonMobil's hydrocarbon energy products are also exposed to increasing and, in many cases, government-supported competition from alternative energy sources.<br>• The company announced emission reduction plans for 2030, including a 20 to 30 percent reduction in greenhouse gas emission intensity across the corporation, a 40 to 50 percent reduction in upstream GHG emission intensity, a 70 to 80 percent reduction in emission intensity methane across the corporation and a 60- to 70 percent reduction in emission intensity from hydrocarbon burning across the corporation.<br>• 2022 was a milestone year for Low Carbon Solutions, which supports reducing greenhouse gas emissions from our operations and provides products and solutions to help lower customers' emissions. |
| Chevron | • Chevron has a strategy to reduce carbon emissions through investments in renewable fuels, hydrogen, carbon capture and storage, offsets, and other new technologies.<br>• The company has a goal to reduce the greenhouse gas intensity of operations by 35% by 2028 compared to 2016 and plans to spend $2 billion on emissions reduction projects over five years.<br>• The company employs an Operational Excellence Management System (OEMS) that covers process safety, reliability and integrity, environment, efficiency, safety, and stakeholders. Chevron applies design principles and engineering and operational practices to prevent and mitigate process safety incidents.<br>• Chevron reports its greenhouse gas emissions under the GHG Protocol and discloses its emissions reduction goals and progress in its annual sustainability report. |
| Shell | • Shell aims to reduce carbon dioxide ($CO_2$) emissions from the energy it sells to net-zero by 2050. Shell also has targets to reduce $CO_2$ emissions from its own operations and the products it sells.<br>• The company increases the share of renewable and low-emission energy in its portfolio, invests in CO2 capture and storage (CCS) projects, supports the development of hydrogen as a clean energy carrier, offers customers solutions to reduce their carbon footprint, such as biofuels, synthetic fuels and electric fuels, and engages in dialogue and cooperation with governments, partners and stakeholders for effective climate policy.<br>• Shell monitors and reports its greenhouse gas (GHG) emissions in accordance with international standards and good practices. In 2022, Shell reduced its GHG emissions from operations by 30% compared to 2016, and its NCI was 75 g CO2e/MJ, a decrease of 6% compared to 2016. |
| Total Energies | • Total Energies aims to achieve net zero emissions by 2050, by reducing emissions from its operations and products sold to customers, increasing the share of renewable energy in its portfolio, and supporting the development of low-emission technologies.<br>• The company has committed to implementing 12 sustainable development goals, which include, among others: safety, health, diversity, human rights, biodiversity protection and corporate social responsibility.<br>• The company has allocated $4 billion in 2022 to invest in low-emission energy sources, such as solar, wind, hydrogen, and biogas. The company plans to increase this share to 20% of its net investments by 2030.<br>• Total Energies conducts intensive energy research and development to improve the efficiency, safety and environment of its operations, and develop innovative solutions for the energy future. The company cooperates with over 500 academic and industrial partners around the world. |

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| Name of the company | Specification |
|---|---|
| Conoco Phillips | • Conoco Phillips joined the Methane Gas Partnership 2.0 and strengthened its methane reduction ambitions by setting a more aggressive near-zero methane emissions intensity target by 2030. The company also released its Blueprint for a Net Zero Energy Transition, with a progress update expected in spring 2023.<br>• The company has a low GHG intensity compared to other E&P companies, and its low-cost-of-supply assets have an average GHG intensity that is 30% lower than the global average. The company aims to further reduce GHG emissions intensity through technological innovation, electrification, monitoring, and detection of methane emissions, reducing the amount of methane burned and vented, and carbon capture and storage.<br>• Conoco Phillips believes that natural gas and LNG will play a valuable role in the energy transition and beyond because they are lower in GHG intensity than other alternatives, especially coal. The company is expanding its global LNG business in Australia, Germany, Qatar, and the United States, supplying LNG to growing Asian and European markets. |
| PetroChina | • PetroChina promotes the integration of oil and gas with new energies, developing geothermal, wind and solar energy, as well as hydrogen and CCS/CCUS. PetroChina aims to achieve peak carbon emissions by 2030 and carbon neutrality by 2060.<br>• The company improves energy efficiency and reduces water consumption, greenhouse gas emissions and waste. PetroChina uses green technologies and equipment, such as waste-free oil and gas extraction, intelligent drilling platforms and environmental monitoring systems.<br>• The company is committed to the protection of biodiversity, recultivation of degraded areas, protection of water and forest resources, as well as cooperation with local communities and non-governmental organizations. |
| BP | • BP's ambition is to be a net zero company by 2050 or sooner.<br>• The company also aimed to install methane measurement at all its' existing major oil and gas processing sites by 2023 and then drive a 50% reduction in methane intensity of its' operations.<br>• BP also wants to increase the proportion of investment the company makes into its' non-oil and gas businesses.<br>• The company also wants to provide integrated clean energy and mobility solutions. |
| TAQA | • TAQA strives to minimize the impact of its activities on the natural and social environment, improve energy efficiency and reduce greenhouse gas emissions.<br>• The company applies an integrated environmental management system, which includes risk assessment, performance monitoring, audits and continuous improvement.<br>• TAQA implements many environmental protection initiatives, such as:<br>  • water recycling, renewable energy sources, educational and information activities to raise awareness of environmental protection among its employees, partners and local communities. |
| Equinor | • Equinor reduced its greenhouse gas (GHG) emissions from its own operations by 31% compared to 2015, and the $CO_2$ emission intensity from oil and gas production was 6.9 kg CO2/boe, well below the global average. Equinor has also implemented several emission-reducing projects, such as gas imports at Peregrino, a heat recovery unit at Statfjord B, and the Snøhvit Future electrification plan.<br>• Equinor has strengthened its position on biodiversity, which goes beyond the principle of doing no harm and contributes to a positive impact on nature. Equinor has also been involved in biodiversity and nature initiatives internally and externally, such as collaboration with the International Union for Conservation of Nature (IUCN) and support for the Global Forest Landscape Restoration Initiative (GLF).<br>• The Company strives to minimize water consumption and waste production in its operations by applying the waste hierarchy principle and promoting recycling and reuse. Equinor also monitored water quality and contamination risks and took preventive and corrective measures in the event of leaks or spills.<br>• The company aims to be a leading company in the energy transition and have set an ambition to reach net zero by 2050. |

Source: authors' work based on BP (2023, 2024), Chevron (2023, 2024), Conoco Phillips (2023, 2024), Equinor (2023, 2024), ExxonMobil (2023, 2024), PetroChina (2023, 2024), Saudi Aramco (2022, 2024), Shell (2022, 2024), TAQA (2022, 2024) and Total Energies (2022, 2024).

As can be seen in the table above, energy companies report on energy transformation and $CO_2$ emission reduction, which are very important for environmental protection (Kaczmarek et al., 2022). Society and investors know the importance of corporate social responsibility. It is crucial for them to understand the company's commitment to environmental protection and contributions to local communities. Achieving this goal requires transparent corporate reporting that offers an accurate

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representation of the company's initiatives. Considering the adverse effects of energy companies on the environment, it becomes imperative for them to actively support local communities, mitigating the noticeable impact on people. Energy companies engage in various activities aimed at enhancing knowledge, well-being, and the overall quality of life for residents in the region, as detailed in Table 4.

**Table 4.** Selected activities of the analysed companies for local communities

| Name of the company | Specification |
|---|---|
| Saudi Aramco | • Supporting economic and social development – the company implements programs and initiatives that aim to increase local added value, create jobs, develop skills and promote entrepreneurship in the Kingdom and globally.<br>• Providing access to energy and water – Aramco provides electricity and water to rural and remote areas in the Kingdom and supports renewable energy and water desalination projects in other countries.<br>• Improving health and well-being – Aramco conducts health and preventive programs that aim to improve quality of life and prevent chronic diseases. Aramco also partners with health and humanitarian organizations to provide medical and emergency assistance in crisis situations.<br>• Strengthening education and culture – the company invests in the education and development of young people, offering scholarships, training, and mentoring programs. Aramco also promotes the cultural and artistic heritage of the Kingdom and the region by supporting museums, festivals, and cultural events. |
| ExxonMobil | • Collaboration with stakeholders – Exxon engages in dialogue with local communities, authorities, non-governmental organizations, and others to understand and address their interests, needs and concerns in connection with planned or implemented projects.<br>• Support for STEM education – Exxon invests in programs that inspire students to pursue careers in science, technology, engineering, and mathematics, and supports teachers and schools in these areas.<br>• Disaster Assistance – Exxon and Mobil stations help local communities rebuild and recover from natural disasters by providing free fuel, meals and beverages to health care workers and first responders. They also support families in need by offering free lunches and donations to local food banks.<br>• Commitment to low-emission initiatives – Exxon implements projects related to CO2 capture and storage, biofuel production, plastic recycling, and hydrogen development to help reduce greenhouse gas emissions and improve the quality of life in local communities. |
| Chevron | • Chevron works with local partners to support projects related to education, health, economic development, and environmental protection. In 2022, the company committed more than $200 million to social initiatives around the world.<br>• Chevron strives to minimize the negative impact of its operations on the environment and people by improving energy efficiency, reducing greenhouse gas emissions, managing water and waste, protecting biodiversity, and promoting human rights.<br>• Chevron respects and celebrates the diversity of its employees, suppliers, and customers, creating a culture that fosters innovation, collaboration, and commitment. The company offers training, programs and resources that help build teams of people with diverse backgrounds, experiences, and perspectives.<br>• Chevron prioritizes the safety and health of its employees, contractors, and the communities in which it operates. The company employs rigorous standards and procedures to prevent and mitigate potential incidents and invests in programs and services that improve the quality of life and well-being of its employees. |
| Shell | • The company works with local partners to deliver energy, create jobs, develop skills, and support entrepreneurship in the communities where it operates. For example, it helps women in Nigeria develop their own businesses, supports farmers in Oman to increase crop yields, and funds educational programs in Brazil.<br>• Shell respects human rights and seeks to prevent or mitigate the negative impacts of its activities on people and communities. The company complies with the UN principles on business and human rights and operates in accordance with its own principles of responsible business. The company conducts regular human rights risk assessments and engages in dialogue with stakeholders to resolve any issues or conflicts that may arise.<br>• Shell recognizes that building lasting relationships with stakeholders such as local communities, non-governmental organizations, governments, and academics is key to achieving its strategy and sustainability goals. The company engages in open and honest communication with stakeholders, listens to their opinions and takes them into account when making decisions. |

DOI: 10.34659/eis.2024.89.2.786

| Name of the company | Specification |
|---|---|
| Total Energies | • Total Energies supports social and cultural projects in the countries where it operates, with an emphasis on education, health, culture, and economic development. In 2022, the company allocated $100 million for this purpose.<br>• The Company complies with international human rights standards and applies the principles of responsible business in the field of human rights and security. The company conducts human rights risk assessments and monitors the impact of its operations on local communities.<br>• Total Energies supports the development of local human and economic resources through job creation, training, knowledge and technology transfer, development of the local supply chain and supporting entrepreneurship. The company is also committed to sustainable development initiatives such as energy access, environmental protection, and the fight against climate change. |
| Conoco Phillips | • The company partners with local organizations and leaders to ensure respect for the culture, traditions, and rights of Alaska Native people. The company also supports educational, health and economic programs for this group.<br>• The company invests in the social and economic development of the Permian Basin region in Texas and New Mexico, where it conducts shale operations. The company supports, among others: initiatives related to education, safety, environmental protection, and public health.<br>• The company is committed to developing local suppliers of services and products in Malaysia, where it has LNG and E&P projects. The company offers training, mentoring and financial support to local entrepreneurs to help them meet quality and safety standards. |
| PetroChina | • PetroChina promotes sustainable development by protecting the environment, saving energy and resources, supporting technological innovation, and improving people's quality of life. For example, PetroChina invested over RMB 2.4 billion in environmental protection in 2022, reducing pollutant and greenhouse gas emissions.<br>• The company cooperates with local communities to support their economic, social, and cultural development. For example, PetroChina has helped build more than 1,300 schools, hospitals, roads, and bridges in poor and ethnic regions, providing education, health care and infrastructure to more than 10 million people.<br>• PetroChina is committed to social activities such as humanitarian aid, fighting poverty, protecting cultural heritage, and promoting sports. For example, PetroChina donated over RMB 100 million to help victims of natural disasters such as floods, earthquakes, and forest fires in 2022, supporting reconstruction and saving lives. |
| BP | • In 2022 the company took further steps to embed social sustainability more systematically and consistently. In 2022 all BP employes were paid a fair wage.<br>• The company also launched a social mobility framework for action and business resource group – supporting people from disadvantaged groups.<br>• BP provided access to health and wellbeing programmes for all employees.<br>• The company also launched 3 new biodiversity restoration projects supporting projects in Turkey, Georgia, and Trinidad & Tobago. |
| TAQA | • TAQA partners with local schools and universities to provide scholarships, internships and training for students and graduates. TAQA also supports educational initiatives such as STEM programs and science competitions.<br>• The Company is committed to improving the quality of life and protecting the environment in the communities in which it operates. TAQA organizes and participates in volunteering, health campaigns, recycling programs and other social and ecological projects.<br>• The Company strives to create value for local suppliers and business partners by increasing the localization and diversification of the supply chain, developing the skills and competences of the local workforce and supporting innovation and entrepreneurship. |
| Equinor | • Equinor works with local suppliers, NGOs, and authorities to create value and opportunities for local communities. For example, in Brazil, Equinor supports educational and vocational programs for youth, and in Tanzania, Equinor helps develop the local energy sector.<br>• The Company cares about the safety and health of its employees, partners, and the communities in which it operates. For example, in Norway, Equinor is working with authorities and others to prevent and respond to crises, and in Mozambique, Equinor is supporting the fight against the COVID-19 pandemic by providing medical equipment and personal protective equipment.<br>• Equinor strives to minimize the negative impact of its activities on the environment and biodiversity. For example, in the UK, Equinor is building offshore wind farms that provide clean electricity, and in Norway, Equinor is implementing emission reduction and CO2 storage projects. |

Source: authors' work based on BP (2023, 2024), Chevron (2023, 2024), Conoco Phillips (2023, 2024), Equinor (2023, 2024), ExxonMobil (2023, 2024), PetroChina (2023, 2024), Saudi Aramco (2022, 2024), Shell (2022, 2024), TAQA (2022, 2024) and Total Energies (2022, 2024).

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Energy companies undertake various initiatives to offset the adverse effects of their operations on the environment within local communities. Some prevalent activities encompass arranging festivals, promoting environmental awareness, providing employee assistance, supporting health initiatives, contributing to community welfare in different world regions, and funding workshops and training sessions. Despite existing regulations and reporting requirements, companies need to enhance their reporting on sustainability information to provide a more comprehensive view of their operations (Malikova et al., 2018).

## Research and discussion

To broaden the study, the analysed case study considered the most important keywords which were found in annual reports of the companies, related to:

- **Environment** – to check how densely the company writes about the natural environment,
- **Community** – refers to mentions of local communities,
- **Responsibility** – to check how densely the company writes about CSR or corporate responsibility. Social responsibility is one of the greatest challenges of the 21st century. (Sadowska et al., 2023).

The above-mentioned keywords were selected for analysis because they largely reflect the assumptions of broadly understood CSR, which concerns, among others, environmental protection and the impact of enterprises on local communities. The data was gathered and presented in Table 5 and Figure 1.

**Table 5.** Number of keywords appearing in the annual reports of the analysed companies

| Name of the company | Keywords | | | Number of pages of the report |
|---|---|---|---|---|
| | Environment and environmental | Community and Communities | Responsible and Responsibility | |
| Saudi Aramco | 75 | 15 | 52 | 220 |
| ExxonMobil | 26 | 4 | 1 | 152 |
| Chevron | 65 | 4 | 54 | 116 |
| Shell | 320 | 88 | 159 | 399 |
| Total Energies | 496 | 147 | 238 | 656 |
| Conoco Phillips | 122 | 5 | 45 | 184 |
| PetroChina | 75 | 0 | 61 | 300 |
| BP | 221 | 24 | 94 | 406 |
| TAQA | 1 | 0 | 18 | 96 |
| Equinor | 132 | 19 | 98 | 304 |

Source: authors' work based on BP (2023), Chevron (2023), Conoco Phillips (2023), Equinor (2023), ExxonMobil (2023), Petro China (2023), Saudi Aramco (2022), Shell (2022), TAQA (2022) and Total Energies (2022).

The table and figure clearly show that the occurrence of keywords in the annual reports of energy companies varies greatly. Their largest number appeared in the Total Energies report. The smallest one in the TAQA company. This may be due to different reporting standards but also to the willingness to publish information regarding the environment, local communities, and responsibility. Some companies prefer to attach additional reports in which they publish this type of information.

It is worth noting that in annual reports, information about the environment is mostly described broadly, as indicated by preliminary research on the content and the occurrence of the keyword. The same applies to the appearance of responsibility in reports. It should be noted, however, that the reports contain little information about local communities, which is also indicated by the frequency

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of the word community appearing in them. This should change, especially when it comes to energy companies. These have a negative impact on the natural environment, as indicated in the previous subsection.

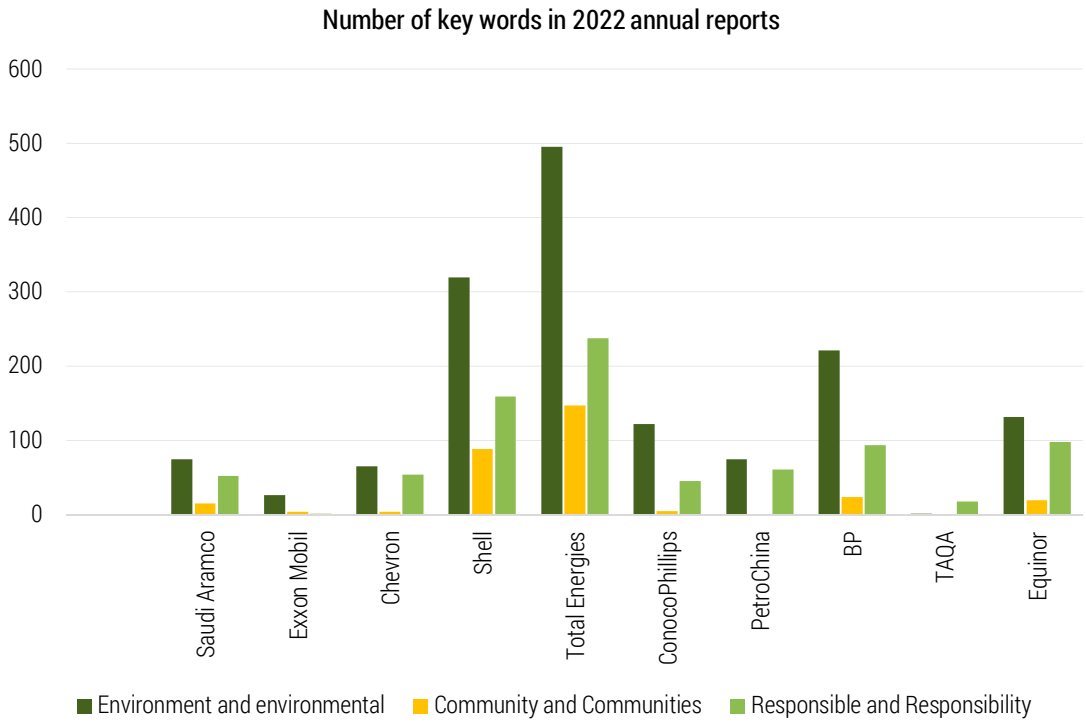


**Figure 1.** Number of keywords appearing in the annual reports of the analysed companies

To support and clarify the research on the occurrence of keywords in annual reports, the indicator of their density in the report should be calculated. **By dividing the total number of mentions by the total number of pages, we can calculate the word density index for the entire report, as illustrated in the accompanying table.**

**Table 6.** The density of keywords appearing in the annual reports of the analysed companies for 2022

| Name of the company | Keyword density | | |
|---|---|---|---|
| | Environment and environmental | Community and Communities | Responsible and Responsibility |
| Saudi Aramco | 0.340909091 | 0.068181818 | 0.236363636 |
| ExxonMobil | 0.171052632 | 0.026315789 | 0.006578947 |
| Chevron | 0.560344828 | 0.034482759 | 0.465517241 |
| Shell | 0.802005013 | 0.220551378 | 0.398496241 |
| Total Energies | 0.756097561 | 0.224085366 | 0.362804878 |
| Conoco Phillips | 0.663043478 | 0.027173913 | 0.244565217 |
| PetroChina | 0.25 | 0 | 0.203333333 |
| BP | 0.544334975 | 0.0591133 | 0.231527094 |
| TAQA | 0.010416667 | 0 | 0.1875 |
| Equinor | 0.434210526 | 0.0625 | 0.322368421 |

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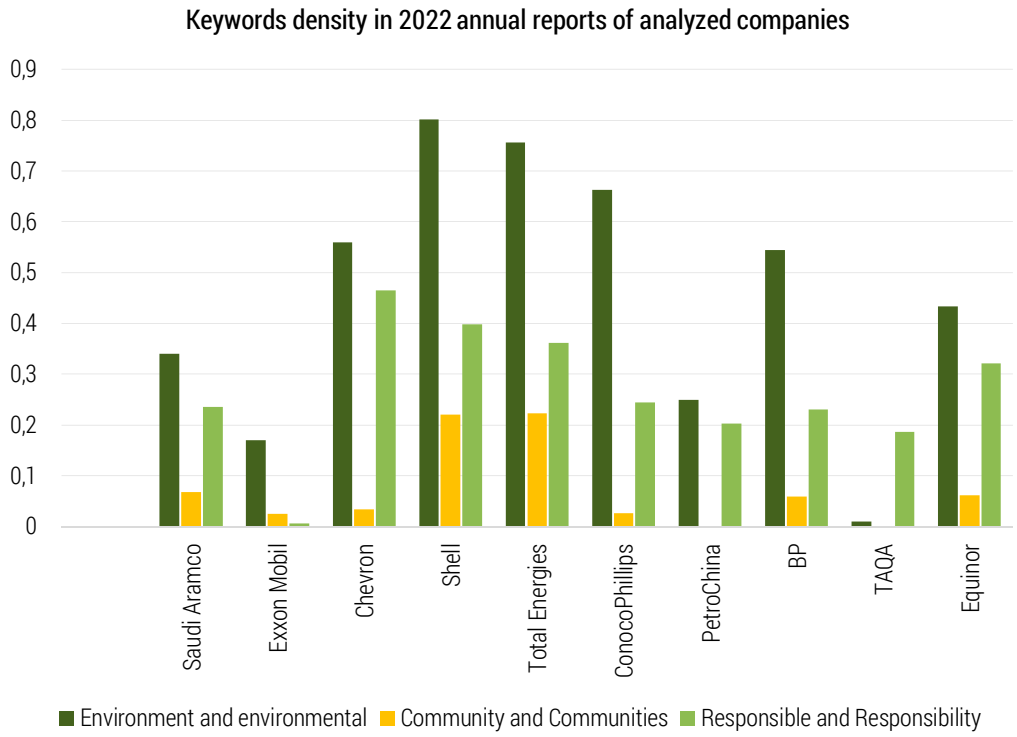


**Figure 2**. The density of keywords appearing in the annual reports of the analysed companies for 2022

Checking the keyword density is very important in energy companies' financial statements. It ensures that the financial statements are clear and focused on the relevant terms that are significant to the energy sector. This helps in maintaining consistency and relevance in the communication of financial information. What is more, a proper keyword density can make these documents more searchable and accessible to investors, analysts, and the public who are looking for specific information about the company's financial health and operations associated with the environment. Maintaining a certain keyword density can help ensure that all required terms and concepts are adequately covered.

The density of keywords in reports may slightly change the perception of how companies describe researched topics. In this case, the ratio of the number of times a word appears to the length of the report is important. Again, these indicators are the highest when it comes to environmental issues, lower when it comes to responsibility and the lowest when it comes to community. This is consistent with the previous table and chart.

The research results are also consistent with the analysis of reports in terms of the availability of information regarding companies' activities for the environment and local communities. On the other hand, there are some limitations regarding the methods used. Measuring keyword density may overlook the context within which the keywords appear, potentially misrepresenting the actual emphasis of the reports. Besides that, the method doesn't capture the qualitative aspects of how these issues are addressed in the reports. What is more, the reports analysed are static documents that represent a snapshot in time, which may not reflect ongoing changes or future initiatives of the companies.

## Conclusions and Policy Implications

As a result of our own empirical research, it should be concluded that energy companies face many challenges and opportunities in connection with the transition to low-emission activities. Therefore, they should adapt their business models and asset portfolios to changing market conditions and social expectations and increase their transparency and responsibility in the field of environmental reporting (Berniak-Woźny & Wójcik-Jurkiewicz, 2022). The increase in spending on pro-environmental and pro-social activities should be widely reflected in annual reports. Investors,

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analysts, and stakeholders will make easier investment decisions when they have greater financial and non-financial information regarding energy transformation, environmental protection, and activities for local communities. Recipients of annual reports will appreciate companies that are more environmentally friendly and that publish information on this topic in a reliable and comprehensive way.

To conclude, it should be stated that the aim of the study was achieved, and it presented how information on the natural environment and local communities is presented in annual reports and indicated the frequency of occurrence of keywords such as: environment, community, and responsibility in annual reports.

To sum up the considerations, one should ask the question: To what extent does the information published in the reports of energy companies reflect the information needs of stakeholders and how useful is it for them? Is it, therefore, justified to examine the information needs of energy companies' stakeholders in the future and, if necessary, to what extent non-financial reports should be modified? These questions should be answered by individual governments, which could force companies to present information on broadly understood environmental protection in more detail.

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## The contribution of the authors

Design of experiments, A.L., B.S., R.W. and Z.B.; conduct of research, A.L., B.S., R.W. and Z.B.; analysis of data, A.L., B.S., R.W. and Z.B.; interpretation of results, A.L., B.S., R.W. and Z.B.; writing of the manuscript, A.L., B.S., R.W. and Z.B.

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Adam LULEK • Beata SADOWSKA • Robert WALASEK • Zdenek BRABEC

# WPŁYW SPÓŁEK ENERGETYCZNYCH NA ŚRODOWISKO I LOKALNE SPOŁECZNOŚCI – UJAWNIENIA W RAPORTACH NIEFINANSOWYCH SPÓŁEK

STRESZCZENIE: Ludzkość od dawna oddziałuje na otaczające środowisko, a wpływ ten z biegiem lat wzrastał. W obecnych czasach, w rozległym świecie, działalność człowieka czasem prowadzi do większych zaburzeń równowagi ekosystemów, które jednak z reguły stopniowo powracają do normy. Spółki energetyczne uznają wpływ swojej działalności na środowisko i społeczeństwo i podejmują różne inicjatywy na rzecz redukcji emisji, poprawy efektywności energetycznej, ochrony bioróżnorodności i wspierania rozwoju lokalnych społeczności. Jednak stopień i sposób ujawniania tych informacji różni się w zależności od spółki, rynku i regionu. Celem artykułu jest pokazanie: (1) w jaki sposób informacje na temat środowiska naturalnego i lokalnych społeczności przedstawiane są w raportach rocznych, (2) pokazanie częstotliwości występowania słów kluczowych: środowisko, społeczność, odpowiedzialność w raportach rocznych. W artykule podkreślono znaczenie przejrzystego i obszernego raportowania korporacyjnego, które odzwierciedla zaangażowanie spółek energetycznych w szeroko pojęty zrównoważony rozwój (oddziaływanie na środowisko i lokalne społeczności), co może zwiększyć zaufanie interesariuszy.

SŁOWA KLUCZOWE: przedsiębiorstwa energetyczne, środowisko, społeczności lokalne, raporty finansowe

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