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Exploring the Link between Energy Efficiency and the Environmental Dimension of Corporate Social Responsibility: A Case Study of International Companies in Poland

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Abstract: This study presents theoretical and practical contributions to the environmental dimension of enterprises' corporate social responsibility (CSR) in sustainable development. Interest in the environment is related to CSR through environmental cost optimization and energy-efficiency management. The practical stage of the research, obtained using the computer-assisted telephone interviewing (CATI) method, allowed for presenting case studies of the best practices used by international enterprises operating in Poland. This study describes the practical tools and advice companies can use to improve efficiency and environmental responsibility. The article is an in-depth study of the growing role of enterprises in shaping sustainable and socially responsible businesses and aims to assess the extent to which these companies prioritize energy efficiency as a part of their CSR initiatives. The authors highlight the role of energy efficiency in achieving broader corporate environmental responsibility. This research aims to encourage businesses to adopt responsible environmental strategies for a greener and more sustainable future. The implementation of this goal helped develop and indicate conclusions regarding the development of environmental tools related to corporate responsibility in sustainable development, encouraging scientific debates and promoting responsible monitoring of the implementation of this concept.

Keywords: energy system; energy efficiency; sustainable development; economy; management; case studies; environment; international enterprises



Citation: Tylżanowski, R.; Kazojć, K.; Miciuła, I. Exploring the Link between Energy Efficiency and the Environmental Dimension of Corporate Social Responsibility: A Case Study of International Companies in Poland. *Energies* **2023**, *16*, 6080. <https://doi.org/10.3390/en16166080>

Academic Editor: Štefan Bojnec

Received: 16 July 2023

Revised: 7 August 2023

Accepted: 18 August 2023

Published: 20 August 2023



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1. Introduction

Energy is a fundamental component of modern civilization, playing a vital role in propelling economic growth and enabling social development [1]. Corporate social responsibility (CSR) is a management strategy by which enterprises voluntarily consider social interests, environmental aspects, or relationships with stakeholders, particularly employees, in their activities [2]. Being socially responsible means investing in human resources, environmental protection, and the company's environment and informing about these activities, which contribute to an increase in the company's competitiveness and shape conditions for sustainable social and economic development [3].

On 28 October 2010, the International Organization for Standardization (ISO) published the ISO 26000 standard after over five years of work with experts from 99 countries. This standard was designed to organize knowledge about CSR. ISO 26000 has no certification. However, it is a practical guide to the principles of responsible business, as it contains guidelines for organizations (not only enterprises) regardless of their size or location. The ISO 26000 standard distinguishes the following areas of CSR: organizational governance, human rights, labor relations, the environment, fair market practices, consumer relations,

and social commitment. In addition, pro-environmental activities are aimed at environmental protection, translating into investments that minimize the environmental impact. These include initiatives such as the following [4–7]:

- Implementing the environmental policy;
- Sustainable management of raw materials;
- Waste segregation;
- Energetic efficiency;
- Environmental education of employees and customers;
- Implementation of ecological and technological processes and ecological products and services.

With growing consumer awareness and new global challenges, CSR has become indispensable in enterprise functioning. The final product alone is insufficient to build a network of loyal consumers. They need a sense that the values of the company they support with their consumer choices are consistent with their own and that their capital will be used for global improvement. CSR activities meet these requirements. Environmental benefits include the following [8–10]:

- SMEs follow best practices;
- Rational management of natural resources and waste;
- Involvement of business partners in the chain of environmental responsibility and the initiation of joint pro-ecological activities;
- Popularizing pro-ecological ideas.

In addition to the unquestionable importance of corporate responsibility for the business environment (society and environment), CSR plays a significant role from a business perspective [11]. Customers expect enterprises' social involvement to be an inseparable part of their activities. Moreover, they willingly contribute to these changes; an affordable price determines interest in a product, and customers pay more for products made under ethical conditions that do not negatively impact the environment [12,13].

This study provides theoretical and practical contributions to corporate environmental responsibility in sustainable development. Primary data were obtained as part of the "Equal Company" (Szczecin, Poland) competition organized annually since 2012 for the Zachodniopomorskie Voivodeship in Poland. During this period, a total of 410 companies were examined. The aim of the study was to analyze companies that have taken specific actions in the area of energy-efficiency initiatives. Thus, 76 companies that have undertaken practical activity in this area were selected for the study. The aim of the article is to answer the question about the role of enterprises in shaping sustainable and socially responsible businesses and to analyze through case studies to what extent they prioritize the issue of energy-efficiency initiatives as part of their CSR initiatives. The practical stage of the research obtained using the CATI method allowed for presenting case studies on the best practices used by international enterprises to improve efficiency and environmental responsibility. It also allowed the development of advice and conclusions regarding environmental tools for sustainable development, encouraging scientific debate and monitoring of the implementation of CSR in a developed and responsible society.

2. Literature Review—The Area of the Environment in the Concept of CSR

CSR is a concept where an organization operating in a given environment voluntarily considers the environment's expectations and assumes an obligation to care for them [14]. The elements of this environment are stakeholders: all entities or persons who may currently or in the future influence this organization or may be influenced by it. Considering the impact criterion, the environment can also be considered a specific company stakeholder [15]. It affects the company as it provides resources (e.g., water and energy), and the company affects the environment by using these resources, processing them, and emitting them into the environment [16–18]. Specifically, as activities for other stakeholders bring effects they can directly assess, stakeholders can express their expectations of the company,

and the basic motive for these activities is to meet the expectations of this stakeholder. The environment can only have its representatives in the form of environmental organizations, scientists, or politicians calling for care. It cannot directly express its expectations (the company should set expectations or rely on representatives). The motives for acting for the environment are usually addressing their interests (ensuring access to resources in the future and reducing costs) or meeting the expectations of stakeholders representing environmental needs. Activities for customers or suppliers under the CSR directly impact the company's cooperation with these stakeholders (e.g., suppliers, as gratitude may offer better terms of cooperation, and customers' frequent purchases, which companies usually count on). The information reaches other groups, affecting the company's image [19]. However, the environment cannot return the favor by, for example, offering more natural resources because only a collective effort and limitation of their use will bring results in the future [20]. Therefore, few enterprises (especially those from the SME sector) undertake environmental activities. If they do, it is their focus area, expecting only indirect image effects [21]. CSR is also a promotional technique within the public relations category in order to cultivate a positive attitude of customers, partners stakeholders, public opinion, and local community (where the company operates). Companies use CSR also in order to gain a good image, as they are concerned by environmental issues, and they are seen as trustworthy entities by assuming environmental goals. Environmental responsibility is promoted by companies not only among customers and stakeholders but also among their own employees (with their families) (examples: volunteering for tree planting) [22]. In the process of shaping a sustainable and socially responsible business, the role of enterprises in creating and implementing strategies related to social and environmental responsibility (CSR) has significantly increased. These strategies cover a wide range of activities, such as protecting the environment, promoting ethical business practices, developing the local community, and safeguarding the well-being of employees [23–25]. Successfully integrating CSR principles into everyday business practices is complicated because it often conflicts with short-term financial goals [26,27]. Therefore, enterprises must balance different interests to achieve long-term sustainability. As such, there may be situations where investments in CSR initiatives that yield long-term benefits may be overlooked in favor of activities that yield faster returns. The enterprises may decide not to invest in renewable energy, which brings environmental benefits but requires significant upfront costs and a longer payback time. Nowadays, due to the growing social and environmental awareness, the concept of corporate social responsibility (CSR) has become a key aspect of the strategy and operations of many companies [28–30].

The concept of CRS allows us to indicate how responsibility is a key element of running a business. In the context of enterprises, responsibility can be enforced (e.g., by law) or voluntary, and its voluntary aspect is particularly important in the context of CSR. The scope of CSR indicates the responsibility of companies towards society and the natural environment. This includes economic aspects (fair competition and relationships with customers and suppliers), social aspects (involvement in social and cultural life and respect for law and tradition), and ecological aspects (sustainable development, protection of natural resources, and reduction of pollution) [31]. A socially responsible organization should act in three areas: economic, environmental, and social [32–34]. The separation of environmental areas in CSR emphasizes its importance [35]. In addition, when the other two areas are considered in detail, it is observed that they were not detached from the environment category. The economic area is related to production and sales, that is, the use of natural resources and the generation of waste or pollution. The social area focuses on meeting the population's expectations. It considers quality of life, as mentioned above, which is influenced by the natural environment or the interests of social organizations, including those related to ecology [36].

In CSR, internal factors that induce interest in the environment are related to cost optimization and the specificity of the company's operations. Management staff should also consider external factors such as the pro-environmental behavior of the competition

(to prevent this aspect from being used as a foundation for competitive advantage) and the requirements of consumers or contractors [37]. The need to adapt to expectations and pressure from stakeholders may cause unethical behaviors in enterprises not ready to implement CSR. They know that if they do not, their position will suffer.

Industrial sector enterprises have increasingly negative impacts on their surroundings. Therefore, CSR has gained significant traction [34]. Maintaining a balance between business operations and their impacts on the environment and community is crucial, and firms face risks pivotal to their long-term viability and prosperity. These include environmental, health, and safety risks and potential damage to their reputation [38].

Implementing CSR in the energy sector may necessitate various approaches, including but not limited to enhancing energy efficiency, constructing energy-efficient buildings, and adopting energy-efficient equipment [39]. Nations should harness renewable resources and optimize their energy utilization to meet their energy needs and enhance sustainability. Ethical energy firms incorporate sustainability principles into their corporate strategies [40].

The European Commission (EC) defines CSR as a strategic approach to corporate management that requires pursuing sustainable development based on economy, environment, and ethics [41]. The European Green Deal (EGD), the EU's most recent approach to economic growth, aims to achieve climate neutrality across the continent [42–44]. This target can be achieved through the adoption of clean energy, which has the potential to reduce greenhouse gas emissions, enhance the quality of life, and ensure an affordable and secure energy supply within the EU [45,46]. In addition, the EGD aims to establish a fully integrated digital energy market, prioritize energy efficiency, and transition the energy sector to renewable sources [43,47].

According to Govil (2023), CSR is an obligation for energy companies [48]. A business operating in the energy sector must recognize the social, environmental, and economic consequences of its actions in all the regions its operations may impact. Companies in the energy sector are highly motivated to implement CSR strategies in their operations, primarily to enhance their competitiveness [49]. Notably, most CSR studies concentrate on developed countries in Europe and the United States [50,51]. The energy sector faces a growing societal demand due to its significant ecological impact and crucial societal role [52]. This sector must adjust to mounting environmental demands by considering social and ecological concerns and devising innovative solutions that inevitably affect its economic performance. A study by Adamkaite, Streimikiene, and Rudzioniene (2022) on Lithuanian energy companies observed a neutral relationship between CSR and financial performance in 2017–2020 [53].

Companies in the energy sector with a significant environmental impact know the importance of reducing their ecological footprint by adopting responsible practices. By implementing CSR strategies and mitigating environmental risks, organizations in environmentally sensitive industries can improve their reputations, gain social acceptance, and ultimately gain a competitive edge. Recognizing the need for responsible behavior enhances the company's image and promotes positive stakeholder relationships [54]. Furthermore, CSR has comprehensive characteristics enabling it to influence business operations across supply chains, providing insights into diverse areas where the company can explore opportunities. Among the EU member states, Poland has the highest proportion of energy generated from fossil fuels. Moreover, Poland's power industry exhibits a high carbon intensity level, notably higher than the EU average [55]. Simultaneously, the national energy policy places significant importance on diversifying energy sources and technologies, ensuring energy supply security and environmental preservation. These priorities have provided a compelling impetus for advancing renewable energy sources (RES) and clean-coal technologies [56]. Under CSR, companies in the energy sector can benefit from technological innovations that enhance productivity and environmental safety [57]. Nevertheless, the degree to which this potential can be realized remains unclear [58,59].

A study conducted on managers of almost 400 companies in Poland's energy sector showed that the social dimension of CSR has the largest impact on the competitive ad-

vantage, especially when offering products of the highest quality. Furthermore, educating stakeholders across the supply chain and cultivating supplier relationships were recognized as significant factors for energy companies regarding social responsibility, particularly for other social groups. Furthermore, the environmental dimension, specifically energy security, considerably influences the competitiveness of energy firms. However, economic indicators have a minor impact on the competitive advantage of these companies [60].

Enterprises in the energy sector engage in substantial undertakings concerning environmental and economic impacts and the implementation of quality management frameworks. They also develop concepts and implement extensive environmental management and risk-impact systems [61]. However, Kurowski and Huk (2021) indicated that companies excel in corporate governance but fall short in CSR's environmental and social aspects. This is because market stakeholders and government bodies influence company performance. This influence is exerted through legal regulations and capital. Although the impact on society is crucial, it is less effective as enterprises cannot be influenced [62].

It is important to remember that energy companies are profit-driven organizations, meaning that profit maximization remains their primary objective [63]. Therefore, it must remain profitable to meet the stakeholder expectations [64] to ensure that a company operates under CSR principles.

3. Research Design and Methodology

In the study, various research methods were used to present a comprehensive picture of the problem. The authors conducted an in-depth review of both Polish and foreign literature in order to understand the current state of knowledge about the role of the concept of CSR and ESG in business practice. Scientific articles, industry publications, and case studies were analyzed to identify key concepts, theories, and methods related to social and environmental responsibility in business. These documents provided up-to-date data on CSR practices in various industries and enterprises, offering a real insight into the activities of enterprises in the field of social and environmental responsibility. In order to understand how managers actually implement and perceive CSR strategies, a study based on a survey questionnaire was conducted.

As part of the analysis of the primary data, the fact that the authors were members of the team organizing the "Equal Company" competition since 2012 was crucial. Every year, the competition attracts more and more companies that implement CSR principles in business practice. The socially responsible activities reported by the enterprises in three main areas were assessed by a group of experts. This study took into account responses from different levels of management and different industries, which elucidated cultural, industrial, and individual differences in the approach to CSR. The data in the competition were collected in three stages:

- The first stage of the research identified enterprises whose CSR activities were noticed and appreciated by the environment. Information about the online survey was disseminated to students through academic teachers and others through social media, with the possibility of submitting such an enterprise. This made it possible to obtain information about enterprises that carried out socially responsible environmental activities;
- The second stage was conducted using the CATI method. Each company proposed in the first stage of the survey was contacted by phone to obtain responses about their CSR activities regarding the environment and their consent or refusal to participate in further stages of the research;
- The third stage involved preparing forms with information on socially responsible activities for enterprises that consented. This information was obtained using the desk research method from internal materials of enterprises, websites, documents, and publicly available articles. In the next stage, activities declared socially responsible in environmental protection were analyzed, and it was determined whether these activities followed legal acts or were voluntary initiatives by the company.

As part of the collection and processing of primary data, desk and field research and case study analysis of enterprises operating in the economy were used. The group of respondents consists of owners or managers of companies and their employees. The research focused on companies in each industry. The condition was the application of CSR principles in business practice. Whether such rules were applied as part of the “Equal Company” competition was assessed by a group of experts, which grew larger every year until, in 2023 it reached the number of 58 experts who represented various fields from scientists, entrepreneurs, and public offices to recipients of the economy.

The study covered the Zachodniopomorskie Voivodeship region, and the research period extended from 2012 to 2023. A total of 410 companies were examined during this period. However, the aim of the study was to analyze companies that took specific actions in the area of energy-efficiency initiatives. Thus, the study included only one of the CSR areas relating to activities in the area of energy. As part of these activities, 76 companies were selected that had undertaken practical activities in the area of energy efficiency. But, of course, the same companies’ activities also appeared several times during the analyzed period (fifteen companies twice, five companies three times, two companies four times, and one company five times). The main limitation of the study population was the area scope, which limited the number of surveyed companies.

4. Results—Energy Efficiency and the Environmental Dimension of CSR

Improving energy efficiency is an important goal of modern companies, which are increasingly obliged to mitigate problems related to climate change. Energy-policy-related activities often fit the environmental dimensions of CSR [65]. For many companies, following the principles of CSR significantly interferes with the current business model, as they must introduce innovative solutions to improve the impact of their activities on the environment. Simultaneously, companies realize that taking such actions is not dictated only by improving their reputation and image in the environment. Sustainable business development means effective management of natural and financial resources. One way this can be achieved is by prioritizing the search for cheaper and environmentally friendly energy sources [66].

Over the last 150 years, most CO₂ emissions, which have negatively affected the increase in global temperature, can be attributed to large energy-producing companies [67,68]. Climate change on a global scale is associated with a rapid increase in electricity consumption. Climate change and unusual weather events increase electricity consumption [69]. The economic, social, and environmental dimensions of CSR are the subject of research by many scientists [70,71]. However, few studies focus on energy efficiency as a pillar of the environmental dimensions of CSR. The research in this area was conducted by R.-D. Chang, Zuo, Zhao, Gan, and Soebarto (2017) and Gerstlberger, Praest Knudsen, and Stampe (2014) [72,73].

The research shows that following CSR contributes to higher energy efficiency, especially in the environmental dimension. This is possible primarily when companies develop all dimensions of CSR: environmental, social, and economic [74]. Energy-efficiency principles can be used as a CSR tool to meet the Sustainable Development Goals set out in the UN 2030 Agenda, thereby addressing the needs of various stakeholders while enhancing profitability. In addition, energy-efficiency initiatives create a competitive advantage based on the highest ethical principles, benefitting both the company and society [75].

Companies practice a more sustainable approach by implementing the energy-efficiency strategy introduced by their products and services. Energy efficiency is indicated by many as the most frequently considered aspect of CSR [15,18]. Respect for them affects our daily lives. Energy-efficiency plans adopted by companies have positive environmental consequences. From the company’s perspective, making the right decisions regarding energy consumption saves money in the short and long term by generating lower energy bills, mainly because of ever-increasing energy prices. Views that companies should not use sustainability and energy efficiency as marketing strategies to improve their image as

being environmentally conscious may exist. However, customers are increasingly aware of the current problems related to environmental protection, and there is a high probability that they will use the products of companies that contribute to reducing negative impacts on the environment. Even if the company does not take these actions, customers treat these practices as an added value to the product or service.

Creating a website improves a company's image. The company can list various CSR activities undertaken on its website, such as information about the support provided or received to reduce the environmental impact and activities affecting the energy-efficiency improvement in the production chain. The company's level of energy efficiency can also be confirmed by obtaining standards such as ISO 50001, which certifies the implementation of an energy management system in the company. They can also boast about the energy efficiency of their workplace by obtaining a green building certificate (e.g., BREEAM, LEED, WELL, and Passivhaus). The company's level of energy efficiency will also be confirmed by information on the use of energy-saving technologies such as energy management software; allowing, among others, an advanced analysis of the energy management plan; creating customized reports; tracking savings; or measuring the carbon footprint [67]. Figure 1 illustrates the number of socially responsible companies included in this study between 2012–2023.

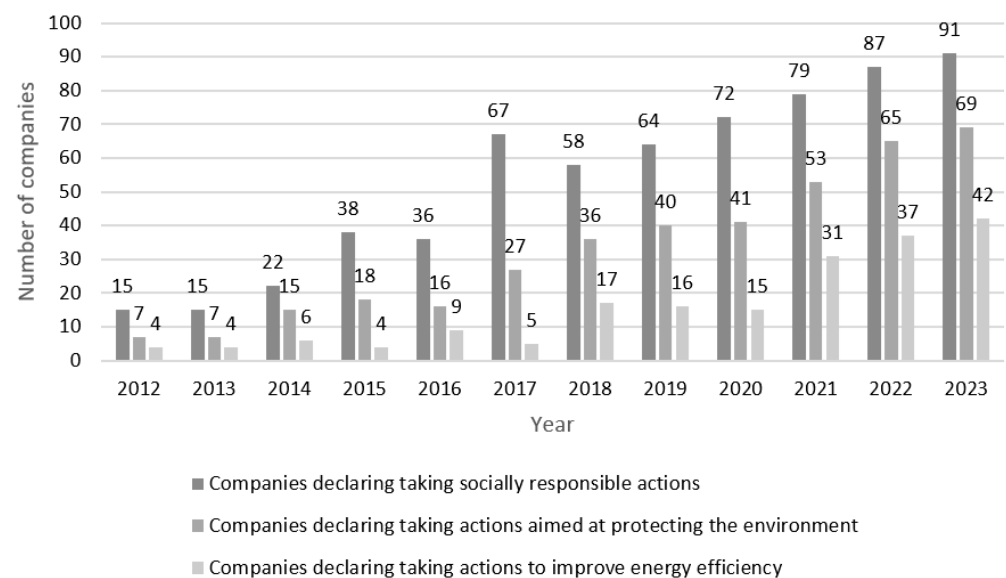


Figure 1. The number of socially responsible companies included in the study, broken down into three categories. Source: own elaboration based on research.

Figure 1 shows an increasing number of enterprises taking socially responsible actions. Almost half of these companies declared actions to protect the environment during the analyzed period. Such practices should be included in the strategy of each company regardless of the sector of activity. Among these enterprises, a small percentage took measures to improve their energy efficiency, although a significant increase in such companies can be observed from 2021. Of course, the mere declaration of action by the surveyed companies in the broadly understood energy-efficiency field is insufficient. Therefore, a qualitative analysis was performed, and we closely examined the activities undertaken by these companies in the adopted time period. Based on a thorough analysis, most companies took action voluntarily. These activities were hard (e.g., installing a new machine) or soft (e.g., a conscious decision to print only the necessary materials, double-sided printing, etc.). Only a few entities introduced changes to their operations that improved energy efficiency that were dictated by the mandatory legal standards to be adopted by companies. Therefore, such enterprises should not be considered socially responsible (considering only the activities related to improving energy efficiency). The analysis also helped identify

enterprises that misinterpreted the environmental aspects of corporate social responsibility and whose actions were unrelated to environmental protection.

In addition to the number of surveyed companies broken down by the categories, Table 1 shows examples of unforced enterprise initiatives worth being followed by other entities and activities that improve energy efficiency but were imposed by legal standards (unconnected to CSR). A total of 76 companies were included, but the activities of some companies also appeared several times during the analyzed period (fifteen companies twice, five companies three times, two companies four times, and one company five times).

Table 1. Actions taken by companies declaring the implementation of initiatives improving energy efficiency in 2012–2023.

Companies that performed certain actions voluntarily (unforced enterprise initiative)—at least one action (68 enterprises)	Examples of actions: use of less-emitting substances; construction of ecological terminals by installing LED lighting in them; the use of a photovoltaic installation and high thermal insulation of the walls and roof; turning off lights and computers outside of center hours; eco-printing; promoting safe and economical (carpooling) travel by company and private cars or bicycles; installation of public chargers for electric cars; installation of installations that generate energy from renewable sources (solar collectors, photovoltaic cells, heat pumps, home windmills, devices that use biomass, etc.); replacement of the gas stove with a newer one with lower fuel consumption; creating ecological heating that does not emit harmful dust into the environment and can be powered by renewable energy; purchase of energy-saving machines; installation of automation for heating the company allowing for economical heat management; special solar panels mounted on the roof of the building; returning power by machines to the power system; use of energy-saving light bulbs; confirmation of the implementation of ecological activities by meeting the standards in the field of ecology and energy and obtaining certificates (e.g., green certificate, BREEAM, ECOCERT, LEED).
Companies that have performed certain actions due to the imposed legal standards (6 enterprises)	Examples of activities not included in CSR due to the lack of bottom-up initiative: regular measurement of dust emissions to minimize environmental impact (Comment: The obligation to conduct emission measurements rests with all entities using the environment (periodic measurements) or releasing significant or energy (continuous measurements). The measurement obligation may be related to the parameters characterizing the efficiency and power of the installation or device. To facilitate and standardize emissions measurement to the environment, the legislator in Art. 148 sec. 1 of the Act of 27 April 2001, Environmental Protection Law, obliged the minister responsible for the environment to issue a regulation specifying the requirements for conducting emission measurements (Regulation of the Minister of Climate and Environment of 7 September 2021, on requirements for conducting emission measurements emissions)); implementation of environmental goals and programs, awareness of threats, prevention of pollution and threats, readiness to remove the effects of failure obligations of enterprises; conducting an energy audit (Comment: Currently, the obligation to perform an energy audit of the company results directly from the Act of 20 May 2016, on energy efficiency. It should be performed cyclically, every four years); introduction of a program to reduce greenhouse gas emissions (Comment: Protection of the environment against harmful emissions into the air is regulated, among others, by international regulations (Annex 6 to the Marpol Convention), but also by EU and Polish law. Under Polish legal regulations, the Act of 15 May 2015, on substances that deplete the ozone layer and on certain fluorinated greenhouse gases, which entered into force on 10 July 2015, is of key importance).
Companies that have performed certain actions that do not meet the CSR criteria (2 enterprises)	Examples of activities: participation in industry conferences related to renewable energy; legal protection of the energy sector (Comment: The activities listed are unrelated to environmental protection).

Source: own elaboration based on research.

The solutions proposed by entrepreneurs are often imprecise and unclear. They often refer to technical rather than legal standards. Moreover, we are unaware whether the functioning of the installation within the enterprise has been regulated with administrative decisions (permits). The solutions are largely arbitrary and are undertaken by entrepreneurs without coercion. However, the quality and impact of these solutions on the environment have not yet been specified or fully defined. Nevertheless, notably, such solutions have become increasingly popular.

5. Case Studies of the Most Aware International Enterprises in the Environmental CSR Area Operating in Poland

Carlsberg Polska Sp. Zo. o. (Szczecin, Poland) is an international company that brews the highest quality beer, both alcoholic and non-alcoholic. The changes made were primarily the pursuit of the goal set by the European Union, namely zero-carbon footprint in the activity. The goal of the Carlsberg Group assumed in the TTZ program is zero CO₂ emissions in breweries by 2030 and the use of 100% electricity. From renewable sources in 2022, thus far, we have managed to reduce CO₂ emissions globally by 30% compared to the baseline in 2015. However, in 2019, 56% of the company's electricity was from renewable sources. This group has also reduced its coal consumption by 89% since 2017. The goal was to achieve ZERO coal by 2022 for the group's breweries. Therefore, Polska achieved a CO₂ reduction of 6.7% by 2020 compared to 2015. Moreover, Browary Okocim, Kasztelan, and Bosman relied on certificates confirming the 100% use of renewable energy sources. The electricity and heat consumption was reduced by 5.6 percent in 2015 and 2019. Okocim Brewery pays a lot of attention and effort to reducing its environmental impact toward zero emissions under the goals of the group's sustainable development program. In 2020, the consumption of heat energy was reduced by 4.3% and 5.1% and CO₂ emissions by 5.8%. An example of their activity to reduce the carbon footprint was constructing a biogas installation in Browar Okocim in 2020. The investment aimed to use biogas produced at the wastewater treatment plant (WWTP) of the Okocim Brewery in separated fermentation mosquitoes, with a calorific value of 22 MJ/m³. The estimated average daily amount of biogas generated covered 100% of the demand of the sewage treatment plant for heating WKF's and buildings located in the WWTP area. Changing the method of heating the chambers from a coal-fired boiler room, which was used to burn approximately 270–300 Mg/year of coke, allowed the complete elimination of this fuel type. Since this investment, the biogas used in the boiler room oscillates between 1000–1100 m³/day. Excess biogas is burned during the flare.

CSL International Speed Sp. z o.o. (Szczecin, Poland) is an international sea freight company. It is a land-transport customs agency, and transport is an industry in which energy efficiency and greenhouse gas emissions are of great importance. The company cares about the environment and reduces exhaust emissions into the atmosphere, and 79.44% of its vehicles meet the EURO 5 standard. Most shipowners use low-sulfur fuels. However, the surcharge for goods transported by ecological vessels is higher. Assessment: Marine fuels must satisfy the standards of international and EU laws. Most requirements concern the sulfur content of this type of fuel. New regulations for reducing the permissible sulfur content of marine fuels from 3.5% up to 0.5% came into force worldwide at the beginning of 2020. In addition, the choice of ecological carriers is voluntary; however, the quality of each fuel is not indifferent and depends on legal regulations.

The DB Schenker company (Humble, TX, USA) deals with integrated logistics services. It built ecological terminals, installed LED lighting, and used electric forklifts in its terminals and warehouses. The company purchases energy from renewable sources. The company cares about filling vehicles with goods because fewer cars on the road means less CO₂. It is at the stage of replacing part of the fleet with a swap-body system. Using swap-body kits for transport resulted in an annual decrease of over 20% in CO₂ emissions. Assessment: These constitute voluntary solutions.

FOSFAN SA (Szczecin, Poland) produces multi-ingredient agricultural fertilizers. The value of the project, in which the company joins the research center in Ukasiewicz—Institute of New Chemical Syntheses—will amount to almost PLN 9,000,000. Implementing R&D develops and uses modern technologies for the low-emission production of mineral fertilizers. Zero-waste technology is part of a company's activities toward a circular economy and sustainable development. The production activity of FOSFAN SA was carried out with particular attention to environmental protection and minimizing the impact on immediate surroundings. In addition to the economic and market effects, the new project, which will expand the company's commercial offer with a new product, will also have an apparent ecological effect. This is a voluntary, unforced enterprise initiative. The company eliminated the formation of slag and ash waste and reduced the emission of energy pollutants related to heating the plant by over 99%. (It replaced coal-fired boiler rooms with natural gas-fired boiler rooms.) Assessment: These constitute voluntary, unforced enterprise initiatives.

Waterworks and the Sewage Plant Sp. Zo. O. (Piaseczno, Poland) are responsible for the collective water supply and municipal sewage disposal and treatment. They implement technologies that limit the consumption of natural resources and minimize the production of demanding products, for example, through the production of green energy from the fermentation of sludge in treatment plants, from photovoltaic farms, and a power generator mounted on a water supply from Lake Miedwie and using sludge, recovery, and reuse of water used in technological processes (e.g., washing filters). For example, on 29 January 2020, the official presentation and commissioning of the water turbine built at Zakład Produkcji Wody "Pomorzany" took place. The device, along with the generator, was placed inside the Miedwie water main. It uses the gravitational fall of water in a pipeline to drive and simultaneously produce electricity. (The level difference between Miedwie and the Szczawiowa Street plant was approximately 30 m.) The power of the installed device is approximately 140 kW, which allows the production of approximately 800 MWh of electricity per year. Savings in this account amounted to approximately PLN 350,000 net per year. In the Zachodniopomorskie Voivodeship, ZwiK was the leader in electricity production from renewable sources. In 2019, approximately 20% of the electricity needed to run its operations was obtained from renewable energy sources, for which energy was produced from photovoltaic farms and biogas generated in the wastewater treatment process. Owing to the applied solutions, the company has continuously rationalized energy costs, allowing it to maintain water and sewage collection charges at a similar level over the last few years. The production of electricity from renewable sources in 2019 amounted to 6740 MWh and was as follows:

- Two photovoltaic power plants in ZPW Miedwie: 2202 MWh;
- The photovoltaic power plant in ZPW Pilchowo: 489 MWh;
- Three biogas co-generators at the Pomorzany Sewage Treatment Plant: 3647 MWh;
- One biogas co-generator at the Zdroje Sewage Treatment Plant: 402 MWh.

After starting the generator turbine in the valve chamber of ZPW Pomorzany, the share of electricity from renewable sources in the total volume of energy consumption in the Szczecin waterworks was 23%.

The thermal energy company Stargard (Stargard, Poland) ensured the reliable operation of the municipal heating system. Reducing interference with the natural environment and, above all, reducing dust emissions is the main task that the company set itself. This goal has long been achieved by locating a heat source for the entire city in one place and liquidating low-efficiency boilers in housing estates and factories. Continuation of the central heating system allowed the elimination of over 80 uneconomical boiler houses from the city center during 45 years of operation. Currently, in modern heating plants, the company pays special attention to dedusting equipment and the preservation of combustion parameters. It regularly measures dust emissions to minimize its impact on the environment. Moreover, it attempts to influence recipients by offering advice and assistance not to waste heat and use ecological heat sources. A geothermal heat source was connected to the municipal heating

network. A biomass heating plant was built on the Kluczewo estate to provide clean, reliable, and safe heat care for customers and the natural environment. Evaluation: The obligation to carry out emission measurements rests with all entities using the environment (periodic measurements) or to release significant amounts of substances or energy into the environment (continuous measurements). The measurement obligation may be related to the efficiency and power of the installation or device. To facilitate and standardize emissions measurement to the environment, the legislature in Art. 148 sec. 1 of the Act of 27 April 2001, Environmental Protection Law, obliged the environment minister to issue a regulation specifying the requirements for conducting emission measurements (Regulation of the Minister of Climate and Environment of 7 September 2021, on requirements for conducting emissions measurements).

Bridgestone Sp. z.o. o. (Zarow, Poland) is an international company that produces tires for trucks, buses, and PCT treads. Bridgestone undertook the following initiatives:

- The Make Cars Green campaign reduced emissions by promoting fuel-efficient driving and green behavior among vehicle users globally;
- Eco-activities undertaken on an international scale and implemented in local markets focus on constantly reducing the impact of the production process on the natural environment, developing the marketing of nature-friendly products, and dynamizing the services of the retread tire sector;
- Focused on developing tire-recycling technology and conducted social education campaigns on ecological car travel;
- Promoted a campaign to reduce car traffic in favor of public transport on Ecology Day.

Assessment: These are voluntary solutions. However, it should be emphasized that entities that place products in packaging and equipment on the market must ensure appropriate levels of recovery and recycling. For example, entities introducing tires to the market must recover 75% of the tonnage produced.

Grupa Azoty—Zakłady Chemiczne Police S.A. (Police, Poland) is a chemical company with large outlays in pro-ecological investments (approx. PLN 10 million annually). They strive to minimize the negative impact on the environment, confirmed by the certificates and distinctions held—the certificate of the Responsibility and Care program, the World Environment Center certificate awarded for the globally unique landfill reclamation technology, the title of “Environmentally Friendly Company”, “Patron of Polish Ecology”, and “SUPER-EKO 2000” award at the “POLEKO 2000” fair. Assessment: These constitute innovative solutions of a voluntary nature. The “Responsibility and Care” Program is an international chemical industry initiative that strives to improve health, safety, and environmental protection. In this case, pro-environmental pursuits for sustainable development are a manifestation of a company’s policy not enforced by law.

Polish Maritime Shipping is a state-owned ship-owner company dealing with sea transport. The greenhouse gas emission reduction implemented on their ships saves several million dollars annually and protects the environment against harmful emissions into the air, which is regulated, among others, by international law regulations (Annex 6 of the Marpol Convention) and the EU and Polish law. Therefore, under Polish legal regulations, the Act of 15 May 2015 on substances that deplete the ozone layer and on certain fluorinated greenhouse gases, which commenced on 10 July 2015, is important. Notably, according to Article 36a, point 9 of the Act of 16 March 1995 on preventing pollution of the sea by ships, it is an administrative offense to operate a ship from which substances that deplete the ozone layer, nitrogen oxides, or fluorinated greenhouse gases are emitted into the environment.

6. Discussion

The aim of the article was to analyze the use of the concept of CSR in energy-efficiency activities and the presentation of the methods of its implementation in the economy used in business practice thanks to case studies of international companies operating in Poland. These contributions begin by providing an understanding of the concept of CSR with academic contributions, international policies, and significant social events that influence

social expectations towards the functioning of enterprises [27,33,65,74]. The results of the study showed that there is a significant relationship between social expectations regarding the behavior of enterprises and the methods of implementing CSR in practice in the economy, which requires further research in many different aspects. [19,22,32,39]. Many studies have analyzed the reasons for the partial implementation of the CSR concept in business activities and indicated the factors that determine the reasons for not using systemic solutions and the need to exert potential benefits [49,57,61–63].

At the same time, this article contains research that gives practical input by answering the question of how to care for common social values within the framework of CSR principles while achieving business goals, which has implications in business practice. As part of the research methods, a comprehensive literature review was used as well as the most important political and social events and actual activities that are most often implemented in business practice, reviewing them as part of the “Equal Company” competition that has been in operation for many years. All these activities translate into the evolution of CSR.

The findings show that the understanding of corporate responsibility has evolved to the latest belief that the main responsibility of companies should be the generation of shared value. The results also indicate that along with the change in social expectations regarding corporate behavior, the concept of CSR has evolved into the business concept of ESG (environmental, social, and corporate governance). The findings suggest that CSR and ESG continue to be relevant within the academic literature and business practice. ESG touches on areas related to environmental protection, social responsibility, and corporate governance. These are the key criteria that every company striving for responsible and sustainable development should pay attention to. The precursor of ESG standards is the concept of CSR. However, ESG covers more non-financial areas, allowing for a better determination of the company’s value in terms expected by the market. CSR focuses on corporate responsibility, which can be used in marketing activities to create a specific corporate image. The ESG methodology focuses on a more measurable assessment of the adopted goals. One of the pillars of the ESG concept is the protection and prevention of environmental degradation. Socially responsible enterprises should create an environmental policy that allows measurable verification of the adopted assumptions and is based on a specific plan. It is also important to identify the risks for the business itself as resulting from climate change. In this area, companies should focus, among others, on aspects such as the following:

- Energy consumption;
- Emission of pollution;
- Raw material supply;
- Water management;
- Renewable energy.

The article indicates the practical activities of companies operating on the Polish market in this aspect. It is worth pointing out that ESG standards do not have to be the domain of large corporations, and the concepts of sustainable and responsible development can also be implemented by small- and medium-sized companies.

Poland’s economy has been growing steadily, making it one of the fastest-growing economies in Europe. However, like many other countries, Poland faces challenges related to energy consumption and environmental impact. The energy sector is essential for the country’s economic growth, but there is an increasing awareness of the need for energy-efficiency measures to reduce costs, optimize resources, and minimize environmental harm. Poland’s heavy reliance on fossil fuels, particularly coal, has been a significant environmental concern. The country’s energy mix has been dominated by coal-fired power plants, resulting in high greenhouse gas emissions and air pollution. This has put pressure on businesses to adopt more sustainable practices, including improving energy efficiency to reduce their environmental footprint.

In recent years, corporate social responsibility has gained prominence in Poland as companies recognize the importance of addressing environmental and social issues.

CSR initiatives are no longer seen as optional but as an integral part of a company's reputation and long-term viability. Businesses in Poland have started to implement energy-efficient technologies and practices to reduce energy consumption, lower operating costs, and contribute to environmental sustainability. These initiatives can include adopting energy-efficient lighting, optimizing production processes, using renewable energy sources, and upgrading facilities to meet higher energy-efficiency standards. Poland, like other European Union (EU) member states, is subject to EU environmental regulations that aim to promote sustainability and reduce carbon emissions. Compliance with these regulations is not only a legal requirement but also a moral obligation for businesses to contribute to a greener and more sustainable future. Investors and consumers have become more environmentally conscious and are increasingly seeking companies that demonstrate a commitment to sustainable practices. Businesses in Poland that embrace energy efficiency and environmental responsibility are likely to attract more investors and customers who prioritize ethical and sustainable behavior.

Improving energy efficiency is crucial for reducing energy consumption, minimizing greenhouse gas emissions, and achieving sustainable development. Both strategic and operative measures are necessary to achieve significant energy-efficiency improvements. The following is a breakdown of some strategic and operative measures:

Strategic Measures:

- Energy-efficiency policy—Governments and organizations need to develop and implement clear and comprehensive energy-efficiency policies that set targets, standards, and incentives to drive energy-saving initiatives;
- Research and development—Investing in research and development for new technologies and practices that promote energy efficiency can lead to breakthroughs and advancements in various sectors;
- Awareness and education—Creating awareness campaigns and educating the public about energy conservation, efficient practices, and the benefits of energy efficiency can encourage behavioral changes;
- Financing and incentives—Offering financial incentives, tax breaks, and subsidies to businesses and individuals for adopting energy-efficient technologies can accelerate the adoption process;
- Energy-efficiency standards and labels—Implementing mandatory energy-efficiency standards and labels for appliances, buildings, and vehicles can help consumers make informed choices and drive manufacturers to produce more energy-efficient products.

Operative Measures:

- Energy audits—Conducting regular energy audits helps identify energy wastage and potential areas for improvement;
- Retrofitting—Upgrading and retrofitting existing buildings, industrial equipment, and infrastructure with energy-efficient technologies can lead to substantial energy savings;
- Lighting upgrades—Switching to energy-efficient lighting systems, such as LED lights, can significantly reduce energy consumption in residential, commercial, and industrial settings;
- HVAC optimization—Improving heating, ventilation, and air conditioning (HVAC) systems with advanced controls and energy-efficient equipment can reduce energy usage in buildings;
- Process optimization—Industries can optimize their manufacturing and production processes to minimize energy waste and improve efficiency;
- Smart grids—Implementing smart grid technologies can enable better energy management, demand-response mechanisms, and integration of renewable energy sources;
- Energy management systems—Adopting energy management systems that monitor and control energy consumption in real-time can help identify inefficiencies and implement corrective actions;

- Renewable energy integration: Increasing the share of renewable energy sources in the energy mix can reduce reliance on fossil fuels and promote a more sustainable energy system.

A combination of these strategic and operative measures, tailored to specific contexts and sectors, can lead to substantial energy-efficiency improvements and contribute to a more sustainable and environmentally friendly future.

In summary, the presented research allows for continuity in the analysis of the evolution of CSR and ESG concepts, which are a response to social expectations regarding the creation of a common good for society as part of business activity. Further development of CSR and ESG concepts must take into account technological changes and their impact on entire societies and economies. Another challenge to ensure the application of the ESG concept is the incorporation of new ICT tools, robotization, and artificial intelligence into the activities of enterprises. Due to the current changes in the business environment, the rules of the operation of enterprises will also have to evolve based on the principles of social responsibility and the generation of shared values to do what is best for the world.

7. Conclusions

This study shows the importance of the environmental dimension of CSR and the practical solutions currently used by international companies operating in Poland. It centers on companies operating in Poland, aiming to assess the extent to which these companies prioritize energy efficiency as a part of their CSR initiatives. Through this research, the authors shed light on the relationship between CSR practices and environmental sustainability and highlight the role of energy efficiency in achieving broader corporate environmental responsibility. This research aims to encourage businesses to adopt responsible environmental strategies for a greener and more sustainable future. Policymakers can also use these findings to design regulations that incentivize and support environmentally responsible business practices.

Today, being socially responsible means investing in environmental protection, which simultaneously contributes to an increase in the competitiveness of a company and shapes the conditions for sustainable social and economic development. Undoubtedly, pro-environmental activities aimed at environmental protection require investments that minimize the environmental impact. However, they contribute to long-term cost optimization and higher energy efficiency. According to this analysis, energy efficiency in both environmental and economic terms is the foundation of the environmental dimension of CSR. The responsibility of enterprises in sustainable development has wide-ranging effects on other business entities, including maximizing economic benefits in the long run. Today, a responsible society cares for and influences the economy through its decisions and choices. Furthermore, customers often treat the use of CSR practices by enterprises as an added value to a product or service, which directly improves the image of the business organization. This article describing specific case studies of international enterprises operating in Poland contains guidelines for all organizations on actions to be undertaken for the environmental dimension of CSR and economic benefits. One of the most important guidelines is to conduct a comprehensive environmental impact assessment to identify the potential negative effects of the company's operations on the environment. This assessment should cover aspects like greenhouse gas emissions, waste generation, water consumption, and biodiversity impact. It is also essential to develop and implement a clear environmental policy that outlines the company's commitment to minimizing its environmental footprint. This policy should be aligned with Poland's environmental laws and regulations as well as international best practices. Companies should also promote environmental education and awareness among employees, customers, and suppliers to encourage responsible environmental behavior and sustainable practices. Activities related to using innovative and effective environmental solutions in the first investment stage are costly. Therefore, due to greater knowledge and financial resources, large international enterprises are often

the first to make changes in this field. However, smaller companies must change specific areas related to their operations because it is vital for the environment and all contractors.

The empirical research obtained allowed for presenting case studies on the best practices used by international enterprises to improve efficiency and environmental responsibility. Examples include reducing energy consumption, improving working conditions for employees, and engaging with the local community. Our findings suggest that in addition to monitoring the implementation of the environmental CSR concept, there is a need to prioritize increasing economic benefits while promoting responsible technology development for a sustainable society. All these activities not only benefit the environment but also contribute to sustainable business success by creating a positive image of the company among customers and other stakeholders.

In conclusion, the article is an in-depth study of the growing role of enterprises in shaping sustainable and socially responsible businesses. The pursuit of applying CSR principles in business can positively affect the competitiveness and long-term stability of enterprises, which is an important aspect of sustainable development. Striving for a balance between economic growth and care for the natural environment and society can provide a sustainable competitive advantage in the global economy. This article is a valuable resource for all companies who want to understand how they can effectively integrate CSR principles into their daily business practices.

Author Contributions: Conceptualization, R.T., K.K. and I.M.; methodology, R.T., K.K. and I.M.; formal analysis, R.T., K.K. and I.M.; resources, R.T., K.K. and I.M.; data curation, R.T., K.K. and I.M.; writing—original draft preparation, R.T., K.K. and I.M.; writing—review and editing, R.T., K.K. and I.M.; visualization, R.T., K.K. and I.M.; supervision, R.T., K.K. and I.M.; project administration, R.T., K.K. and I.M.; funding acquisition, R.T., K.K. and I.M. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded from the programme of the Minister of Science and Higher Education “Regional Excellence Initiative” in 2019–2023; project number 001/RID/2018/19; the amount of financing: PLN 10,684,000.00. Research results are a part of research project financed by the National Science Centre Poland (NCN) Miniatura 6 2022/06/X/HS4/01426.

Data Availability Statement: Data are contained within the article.

Conflicts of Interest: The authors declare no conflict of interest.

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