Analysis of the environmental information in the annual accounts and sustainability reports of electricity companies operating in Spain.

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INDEX

Index of Tables

Index of figures

Abstract

From the late 1990s until today, there has been an increase in awareness by society and companies of the environmental damage that the latter were causing through production, making the environmental issue more and more serious, that even in our days the environmental concern is increasing due to recent natural disasters. Thus, regulations have been established for those companies that cause a certain environmental impact with the aim of preventing or mitigating such negative effects, proposing instructions in relation to environmental aspects that companies must follow, which include the need to quantify and record in the accounts certain activities related to the environment, and subsequently publish them in their annual reports to publicize the environmental actions carried out.

Therefore, the aim of this work is to carry out an analysis to determine the level of compliance with environmental regulations and the quality and quantity of the environmental information both mandatory and voluntary provided by the ten electricity companies operating in Spain through their annual reports, given that this sector has been the first to be regulated for environmental reasons and one of the main emitters of C02 particles in our country.

Introduction

From antiquity to the present day, business activities have always been of great relevance to society, as they fulfil the role of producing to meet people's needs, and thus make people's lives increasingly comfortable. Nevertheless, in order to achieve this, companies must carry out a series of activities that damage the environment in a progressive manner, such as the extraction of raw materials, the production of which emits toxic particles into the atmosphere, and even the improper management of waste resulting from production. For this reason, it is said that the environment is related to the economy, in that while the economy improves, the state of the environment worsens.

Some of the negative effects caused by production to the environment we can mention climate change, deforestation, loss of biodiversity, generation of smog, pollution of water, air and soil, destruction of agricultural production, and among many other effects, so that sometimes are irreversible and can affect the quality of life of people as the emergence of new diseases and also the loss of biodiversity. Therefore, due to these negative effects, it causes society to be concerned about the state of the environment, and begins to require companies that cause a certain environmental impact to carry actions in order to avoid or minimize environmental consequences. From all of the above, arises the environmental role within the accounting with the aim of valuing and recording environmental items, and then informing the public through annual reports, with the purpose of preserving a good corporate image in the eyes of stakeholders by reporting on the actions taken by companies to prevent or mitigate environmental damage.

The purpose of this paper is to analyze the degree of importance of environmental information published by those electricity companies operating in Spain of the years 2018 and 2019, both to determine the quality and quantity of environmental information and the level of compliance with environmental regulations, that the vast majority of those we are going to study belong to the most polluting companies registered in 2018.

To begin with, we will analyze the theoretical framework of environmental accounting, such as the evolution over time of this type of accounting, the advantages and disadvantages of implementing it, how the relationship with stakeholders is established, current environmental regulations to be accomplished, and among others.

Then, the objectives will be discussed, as well as the reason that led us to carry out this study. On the other hand, we will also comment on the methodology we have used to carry out the analysis based on the bibliographic review of works presented previously.

To achieve the above, we have compiled the annual accounts and the sustainability reports of the corporate websites of those electricity companies and of the CNMV website in case they cannot be found on their own websites, in order to later analyze them and produce a series of results following the guidelines of the methodology established for the analysis that will be seen later on.

To finish the work, we will make a series of conclusions based on the results that have been obtained.

1. **Environmental information.**

Nowadays, due to the fact that business activities cause great impacts on the environment, through the exploitation of natural resources (fuel, oil, gas, and among others) both in industrial production activities and in the provision of services, with the aim of satisfying consumer demand, society's concerns about the environment are increasing, whether they be public administrations, environmentalists or individuals. Therefore, there are needs or requirements for companies that cause a certain environmental impact to publish information on the environmental performances being carried out by companies, in order to mitigate the environmental consequences.

This new demand or need has arisen in the interest of environmental conservation, "which has meant an increase in the demand for information on these aspects, both for companies and for public administrations, developing new mechanisms for communicating environmental information". **(Brusca, 2003, pp. 46).**

Since stakeholders began to require such environmental information, it caused another branch known as environmental accounting to emerge within the conceptual framework of accounting. From that, environmental accounting arises from the need to know both internal and external information on the environmental actions of companies.

1.1. What is environmental accounting?

Environmental accounting can be defined as the information system on environmental factors intervening in production or marketing processes, used as a planning and management tool of a company or entity.

For the performance of environmental accounting, the following functions can be taken into consideration:

- The measurement, recognition, valuation and relief of negative consequences on conventional accounting practice.
- The separate identification of costs and revenues generated by environmental actions within conventional accounting systems.
- Decision-making in order to consider the environmental effects that exist in conventional accounting.
- The development of new ways of measuring, reporting and evaluating in order to meet internal and external objectives.
- The development of new financial and non-financial accounting systems, information and control systems to harness environmental benefits from administrative decisions.

1.2. The origin and evolution of environmental accounting

Environmental accounting arises from the required need to quantify, record and report the damage caused to the environment due to the production and service provision activities carried out by companies, and the corresponding preventive or corrective actions needed to avoid environmental damage.

As for the evolution that this environmental matter has undergone, throughout the time horizon, it encompasses the so-called four stages of evolution, from the first appearance of the concept of environmental accounting due to its importance, to encompassing the current environmental concepts and regulations, that at the beginning environmental accounting went through a period of uncertainty. It can be said that environmental accounting first appeared in the 1970s. Of the periods we will describe below, it stands out that some periods were more prevalent than others. So that guiding us by **Mathews (1997) and Ienciu and Matis (2010) cited by Stanciu, Joldos and Stanciu (2011)**, it describes the development of environmental accounting in the following stages:

- **First stage, from 1970 to 1980. (Period of Reflection)**

  In the early 1970s, this “represents to the beginning of the first researches in the area of environmental accounting, which had a more descriptive character” **Stanciu, Joldos and Stanciu (2011, p. 266)**, motivated by the awareness of the damage that companies are causing to the environment due to the growth and economic development carried out by the great economic and industrial powers from the end of World War II to the end of the seventies.

In general, it can be said that corporate environmental accounting emerged in the 1970s. In 1972, the Meadows report to the United Nations raised the issue of limits to growth, which deals with the concern that growth would come to an end because of environmental problems if companies did not change the way they operate, and therefore managed to raise social awareness about the ecological damage that would stop the growth. This led to start a whole series of political and economic measures, at the macro and micro levels, aimed at the recognition and overcoming those limits. **(Quinche, 2008).** So, in accord to **Guijo, (2014, pp.4),** "after the United Nations Conference on the Human Environment, held in Stockholm in 1972, which was the moment when UNEP[1] emerged, at that time, the environment could be said to be institutionalized, rigorous environmental regulations are beginning to be drafted and the "polluter pays" principle is assumed".

"At first, companies considered all these limitations as a brake on their organizational development, since they did not see them as a way to obtain a more than precious competitive advantage, but as something costly and not very profitable for the company". **(Guijo, 2014, pp. 4).**

- **Second stage, from 1981 to 1994. (Management/Production Period)**

During this period there was increased interest from researchers in the relationship between the function of accounting and environmental actions, therefore, environmental accounting began to be taken more into consideration. These advances in Environmental Accounting have been motivated by social pressures for sustainable development, because production in an unsustainable manner caused damage that led to negative environmental consequences such as the danger of extinction of some species, loss of the ozone layer due to C02 emissions, drought caused by climate change, and others.

These environmental consequences raised social awareness of the damage that is being caused to the environment and of the dangers attracted by economic and industrial development. Therefore, some companies chose to present a green image, based on sustainability and respect for the environment to the public.

[1] **UNEP:** United Nations Environment Programme, established in 1972.

But, nevertheless, in the case of Spain, companies were only complying with the minimum regulation imposed and did not offer environmental improvements. **(Guijo, 2014).**

"Also during this decade, companies will be framed in the predominant presence of true profit (Although there is a strong expression of the utility approach), which means, in a search for environmental costs, the development of environmental management accounting" **(Quinche, 2008, p. 208).**

- **Third stage, from 1995 to 2001. (Period of External Information).**

This period corresponds to the maturation of environmental accounting, when disclosing environmental information towards external stakeholders is starting to be taken into consideration, from which environmental accounting started to be applied in companies that cause a certain environmental impact. On the other hand, the first audits on the environmental field appeared, and the number of investigations into this new type of accounting has increased.

- **Fourth stage, from 2002 to current period**

During this period, regulations on the management and disclosure of environmental information began to be published, proposing stricter standards for the disclosure of such information with which all companies must comply. An example would be the ICAC resolution of March 25, 2002, which requires companies to disclose environmental information in their annual accounts, both positive and negative, describing in a quantitative and qualitative way the environmental activity that has been undertaken.

Currently, we can see that companies are taking the environmental damage that they are causing more and more seriously. So they are beginning to implement environmental management in the organization with the aim of obtaining a greater commitment to the environment, comply with environmental regulations, reduce costs and improve the image of the company, which of all of them would result in competitive advantage.

By the way, we can synthesize the evolution and changes that environmental accounting has undergone from the following illustration. (Figure 1).

Evolution of environmental accounting over periods.

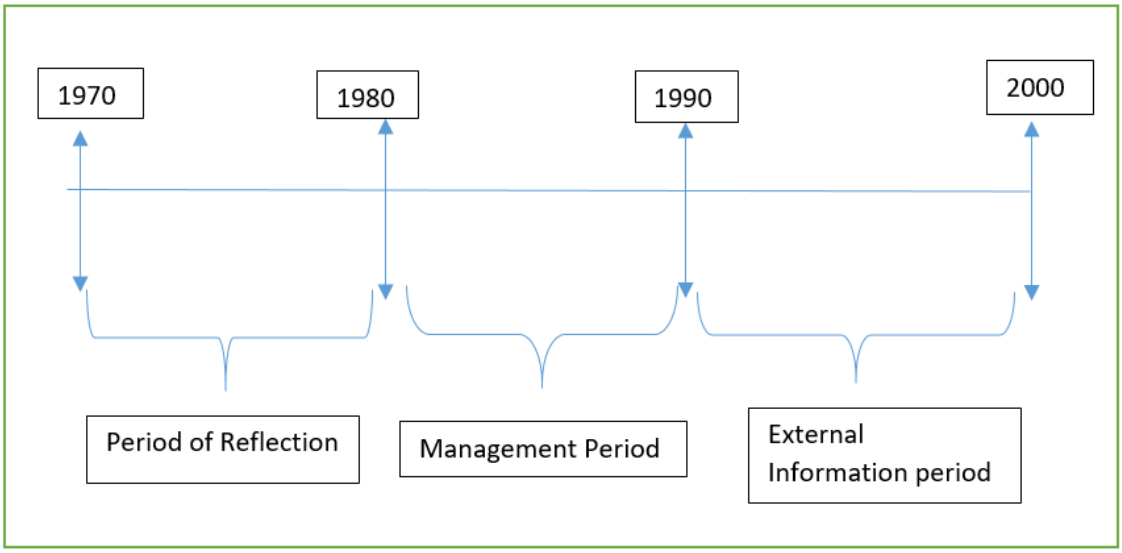

Figure 1. Source: Own Elaboration based on data from Quinche (2008).

2. Importance of Environmental Accounting.

2.1. Importance of Environmental Accounting in the electricity sector.

The importance of implementing environmental accounting in electricity companies lies in the impact that this sector has on society both in terms of national GDP and the environmental impact caused by its production.

The study carried out by **Energía y sociedad** maintains that electricity is an essential good for maintaining the functioning of Spanish society, and that of all the energies used in 2015 it represents 23%, only being behind oil and its derivatives, which represent 53%. As can be seen in the following figure.

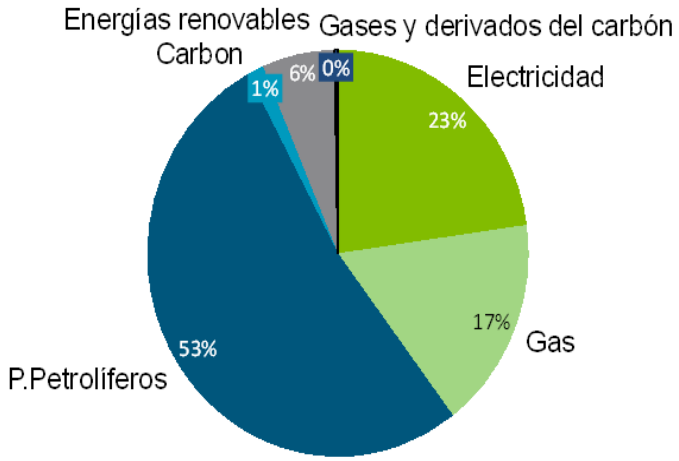

Figure 2. Source: energíaysociedad.es

On the other hand, according to the same study, it expresses that the contribution of the electrical sector in terms of GDP in 2016 in Spain was a little more than 1.8%, of which this figure is significant taking into account all the sectors that exist in Spain, in which it is only a little less than the primary sectors (Agriculture, fishing, bovine, and so on) **(Energía y sociedad).**

The importance of the electricity sector to the economy is a reason for the implementation of environmental aspects in accounting because the greater the supply, the greater the exploitation of natural resources that leave ecological footprints, i.e., emissions of polluting particles into the atmosphere that call sustainability into question. Such as fossil fuel consumption, air pollution, including global warming produced by C02 emissions or acid rain produced by S02 emissions, the need to adopt a solution regarding the location of high level radioactive waste, and the unequal distribution of energy resources between rich and poor countries. But it is also true that electricity generation offers some ecologically desirable options, such as the use of renewable energy sources or electricity demand management**. (Larrinaga, 1999)** Therefore, these environmental impacts need to be identified and assessed both quantitatively and qualitatively and then used as a basis for decision making to reduce the ecological footprint and promote innovative measures to encourage clean energy production.

2.2. Groups of interests or Stakeholders.

As we have previously pointed out in the section on the evolution of environmental accounting, which indicates the advances and changes that have been added in the

environmental accounting field. It can be highlighted that all these advances in environmental accounting were made because of the demands and pressures exerted by society due to the unsustainable production processes that companies have been adopting for industrial development. As a result of this productive inefficiency, companies cause serious damage to the environment, and it is for this reason that interest groups or stakeholders appear who are interested in seeing if the environmental actions of entities comply with the imposed environmental legislation.

Further to the above comments on stakeholders, it is worth explaining what this means in business terms. That is, according to **Freeman, (1984) cited in González (2007, p. 208)**, "any group or individual that can affect or be affected by the achievement of the company's objectives". In this manner, there arises the so-called **theory of the stakeholders**, which is based on the belief that the company is not something of one (shareholders and owners), nor exclusively of two (owners and workers), but that the company must be understood from the plurality of the agents that affect and intervene in the company. On the other hand, the Stakeholder theory also allows us to understand that among the different types of stakeholders that make up the company, a series of relationships are established that can be understood from the perspective not only of the legal contract or the social contract, but also of the moral contract. **(González, 2007).**

From an environmental perspective, this means that the consideration of the different stakeholders that intervene in the company due to business actions that affect the environment, requires the company to provide information of an environmental nature, so they can visualize it and the activities can be legitimized.

According to **Gallizo, (2006, pp. 85-88)**, we can classify stakeholders or pressure factors into four categories, of which companies consider them to be the most important and influential:

- **Regulatory stakeholders:** which include government authorities, information exchange associations, which make it easier to obtain information about current and potential legislation, informal information networks (especially technological) and several companies that act as leaders in the environmental field, so as to establish organizational and technological behavior guidelines.

- **Organizational stakeholders:** which will be the agents that are related to the organization, such as consumers, employees, suppliers or shareholders.

- **Community stakeholders:** such as any community of citizens directly affected by environmental degradation or any environmental organization

- **Social Media stakeholders:** Those who have the capacity to influence social perceptions of the company's activities.

Out of the four types of interest groups described above, we can state that the presentation of environmental information in the Annual Accounts leads to a series of advantages. These could be the evasion of green taxes, or sanctions and fines for meeting the information needs of regulatory stakeholders, and the constitution of an environmental commitment and the presentation of a green image toward the four stakeholders mentioned above, in order to give them the perspective that the company is protecting the environment, so that it can attract more customers, and with it, an increase in profits.

On the other hand, presenting environmental information can attract the attention of stakeholders such as consumers, employees, suppliers or shareholders and social media. Since today, in the case of electricity consumption, consumers prefer to consume electricity from renewable energy sources (Wind, Photovoltaic, Hydraulic, biodegradation), than conventional sources, those that use coal, oil and nuclear energy to manufacture electricity. So they highly value environmental actions in order to obtain clean electricity. If companies manage to get information on the environmental field to consumers, the amount of sales could increase by obtaining competitive advantage, and in the same way it can attract potential investors by the attractive image of the companies.

The publication of environmental information by entities also attracts interest both in the media, such as news, and from social networks, such as Facebook or Instagram, which are currently the most popular social networks whose number of users is invaluable. Thus, information on companies' environmental actions can be transmitted to society both from the media and from social networks, so therefore, it greatly improves the image of companies.

2.3. Advantages of environmental accounting.

The fact of providing detailed environmental information in the annual accounts included within annual reports might gain a series of advantages to the companies whose publish such type of information, from becoming aware of the environmental situation that affect to firms and the society, which lead the companies to improve internal performances in relation with environmental friendly management (implementing an environmental management system); to lead to increase the benefits translated into improved incomes such as income obtained from the sale of waste generated during the production process, subsidies and grants, cash prizes for good environmental performance, recycling and reuse, and savings generated by excess provisions for environmental expenses. Such advantages due to the incorporation of environmental information in the annual accounts, or implementing environmental management systems, according to **López (2008)**, that should be taken into account would be as follows:

- Environmental advantages and regulatory compliance:

  - In order to know the environmental situation on the part of the companies, and to wake the awareness and responsibility of the company workers.
  - Environmental protection and continuously improvement.
  - Establishment of environmental policies.
  - Verification of the current environmental legislation and identification of possible non-compliance.
  - Elimination of liability for environmental damage.
  - Definition of environmental responsibilities to all hierarchical levels.
  - Optimizing the effectiveness of periodic environmental audits.
  - Development of environmental protection initiatives.

- Environmental costs savings:

  - Control and optimization of resource consumption.
  - Cost savings such as: resources costs, repair costs, image clean-up costs, additional costs (taxes, discharge charges, and so on) associated to the environmental pollution caused by the activities of the companies, and sanctions and fines for non-compliance of the environmental regulation.

- Identification and management of environmental costs.
- Optimization of waste management and treatment costs, discharges and emissions.
- Reduction of packaging, transport and storage costs.
- Reduction of risk of accidents and associated costs.
- Definition of cost effective measures based on a better business knowledge.
- Reduction of insurance premiums for environmental risk.
- Improved conditions in the negotiation of credits for environmental engagement.
- Environmental costs can be compensated by the sale of waste or sub products.

- Improving external relations and image, and boosting sales:

  - Improvement of the company's image in front of pressure groups and stakeholders.
  - Increased information and external transparency by making public certain elements of the environmental management system, such us environmental policies, results, and so on.
  - Increased stakeholder confidence (legislators, shareholders, clients, banks and consumers, among others) due to increased credibility of the provided information.

- Knowledge of the activity: internal and performance improvements

  - Improving knowledge of practices, facilities, material and equipment, services and products.
  - Organizational control over processes.
  - Identification of areas of environmental responsibility and other compliance issues outside the environment.
  - Invitation to managers to reflect, to take the right decisions and implementation of environmental protection initiatives.
  - Development of initiatives for the control, minimization and treatment of waste, emissions and discharges.
  - Improvement of the production process by decreasing pollution.
  - Improvement of internal relations, motivated by the fact that both supervisors and employees feel greater motivation and satisfaction in undertaking those

productive or commercial activities which consequently generate less or, alternatively, “zero” negative impact on the environment.

- Complementing other management systems (quality, safety and hygiene).
- Prevention of environmental risks, accidents and hazards work.
- Incentive to technological innovation and quality increment.
- Involvement and motivation of staff in the search for common objectives.
- Improvement of awareness and acquisition of the environmental responsibilities to all levels of the organization (direction, management, staffs).

- Among others:

  - Better access to the financial market.
  - More attractive equity for investors.
  - Easier approval of expansion projects by greater trust from the authorities.
  - Obtaining insurance of a specific environmental nature.
  - New business opportunities.
  - Granting of subsidies and public aid.
  - Granting of permits and licenses.
  - Obtaining awards from environmental organizations.
  - Facilities in the procedures for the acquisition of 'ecolabel'.
  - Granting of loans, credits, and so on.
  - Facilities for certain investments.
  - Contract awarding.
  - Facilities for the acquisition, purchase or merger of other companies.

2.4. Disadvantages of environmental accounting.

But, nevertheless, as a counterpart the publication of such environmental information also attracts negative consequences for companies, which would be as follows:

- Difficulty in implementing environmental accounting in some companies due to its unpopularity and voluntary nature **(Solis, 2015).**

- This could include environmental information that is not very favourable to the company, and could have a negative impact on the company, generating a bad image in the eyes of stakeholders.

- It is impossible or extremely difficult for some companies to create accounts that contain environmental variables due to the difficulty of valuing goods that do not have a market price, and which more often than not do not have replacement costs because they are non-renewable natural resources.

3. Publication of environmental information

3.1. Different attitudes of the companies in relation to the publication of environmental information.

With regard to the demands presented by interest groups or stakeholders, such as consumers, public administrations, legislation or ecological groups, determined by the preservation and improvement of the environment, the companies are more and more taking into account the environmental measures that should be adopted and implemented as it is seen as an opportunity to achieve, on the one hand, alleviate the pressures of interest groups or stakeholders and avoid possible sanctions or fines due to no-compliance, and on the other hand, to increase the competitive advantages, such as, image enhancement, increase in sales, which, as a consequence, increases the companies´ profits.

But nevertheless, different companies have different attitudes towards environmental awareness and action that according to **Báinez y Nevado (1994) cited in López (2008)** the attitude of companies could be included in some of the following groups:

a) Those companies that have a favourable attitude towards the publication of environmental information, both positive and negative, take into consideration that this attitude will help them to improve the company's image, and to reduce costs such as fines and sanctions, because they demonstrate their commitment to the environment.
b) There are also other companies that have an indifferent or almost unfavourable attitude towards the publication of environmental information because they believe that it would have negative consequences for their corporate image. So therefore, they only publish the positive aspects of their environmental actions, excluding the negative aspects as much as possible.
c) There are other companies that present a negative attitude towards this issue. Therefore, they do not present any environmental information.

3.2. Causes of publication and non-publication of environmental information by companies.

3.2.1. Reasons for companies to publish environmental information.

As we have previously pointed out in the section on the advantages of incorporating environmental information in the Annual Accounts, it can be highlighted that companies have good reasons for presenting environmental information. However, it is necessary to highlight the real reasons they have for publishing such information in accord to a research carried out by **Masanet (2005, p. 235),** which comments that "taking as a sample those companies that proceed to publish environmental information, they argue as reasons both the improvement they obtain in their business management and the contribution to the improvement of their company's image and social responsibility considerations. The latter reason would be characteristic of those concerned with the environment in which companies operate".

3.2.2. Causes for non-publication of environmental information.

The reasons that lead companies to not publish environmental information in their annual reports derive from the fact that the publication of such information is voluntary and there is no uniform criterion for its implementation. On the other hand, it is also worth highlighting that some companies consider them unnecessary, believing that because of the small size of the company it would not have repercussions on the environment, and there are even others that are barely aware of the existence of publishing environmental information. Therefore, these companies will not publish environmental information unless an increase the legislative rigidity on this matter is carried out. **(Masanet, 2005).**

3.3. Classification of environmental information

The type of information provided can be classified according to its nature and the medium used to disseminate the information, of which the research of **Larrinaga et al. (2002)** shows the followings:

It can be classified as financial or non-financial information.

- **Financial information:** It consists of the quantitative information of an environmental nature included in the financial statements and in the notes.
- **Non-financial information:** They are usually included in both the reports and the management reports. They contain qualitative information regarding damage to the environment, explanation of the environmental expenditure or investment allocated, and on the other hand, quantitative information on environmental impacts such as CO2 emissions or water use.

And according to the obligatory and voluntary nature of the environmental information to be provided, the following can be highlighted.

- **Mandatory information:** The mandatory environmental information is normally contained within the annual accounts. Required by ICAC 2002 regulations.
- **Voluntary information:** This type of information is usually included in sustainability reports presented by the companies alongside the annual accounts.
- **Environmental report:** This type of report details the measures taken to minimize the environmental impact caused by industrial activity, how to improve production efficiency, environmental objectives for future periods (decarburization, reduction of emissions and water use, etc.), comparison of emissions with environmental standards, and full cost accounting.

For a better visualization of what we have commented before we can look at the following table:

Classification of environmental information.

		Annual Report		Environmental Report
		Mandatory information	Voluntary information	
Financial information		Environmental assets, expenses, provisions and contingencies on the balance sheet, income statement and notes to the accounts.	Decomposition and explanations of environmental expenses, investments, provisions and contingencies	Full cost accounting
Non-financial information	Quantitative	Physical quantification of environmental impact in the memory or in the management report	Physical quantification of the company's environmental impact supported by graphs, tables, and so on., in a specific section of the annual report	Material balance. Comparison of emissions with environmental standards
	Narrative	Description of the impact or initiatives for the minimization of the management report.	Description of the environmental impacts and corrective initiatives in a specific section of the annual report	Technical description of impacts and minimization measures, distinguishing sources of pollution and "sinks".

Table 1. Source: Own elaboration based on data from Larrinaga et al. (2002).

3.3.1. Mandatory environmental information.

In the previous section, we have commented that environmental information differs in mandatory information and compulsory information.

Well, in this section we will try to describe in depth what mandatory environmental information is.

According to the ICAC[2] Regulations published in 2002, in the case that companies have been involved in environmental matters, such as the acquisition of assets to reduce pollution or expenses incurred of an environmental nature, this information must be included in the annual accounts of both individual companies and groups of companies in order to present a true and fair view of the published annual accounts **(Ruíz de la Rosa, 2002; López Gordo y Lázaro Rodríguez, 2006; Deniz Mayor, 2007, cited by Guijo, 2014).**

With respect to the mandatory information, the environmental actions carried out by the companies must be reported in the Annual Accounts, according to ICAC (2002). In other words, the environmental information must be included in the balance sheet, the profit and loss account, statements of changes in equity, cash flow statement, and in the notes.

The presentation of the management report would also be essential if the company includes environmental information, so that both financial and non-financial indicators are included, in order to provide a better understanding of the environmental actions carried out by the companies.

3.3.1.1. Environmental information in the balance sheet.

The balance sheet shall include any significant environmental actions within the assets, if they are intended to be used on a lasting basis in its activity, the main purpose of which is to minimize the environmental impact and to protect and improve the environment, including the reduction or diminution of future pollution from the entity's operations. For example, it could be the provision of a technological innovation in an asset such as machinery, with the aim of improving efficiency so that it uses less electricity.

[2] ICAC: Instituto de Contabilidad y Auditoría de cuentas. (In english: Institute of Accounting and Auditing)

On the other hand, we have the environmental liabilities, which consists of a present obligation contracted by the company, of which, it will have to get rid of resources in the future to cancel it, provided that it is of an environmental nature. An example of environmental liabilities could be decommissioning provisions and provisions for environmental actions.

3.3.1.2. Environmental information in Profit and Loss account.

The income statement includes income and expenses generated by environmental activities.

Environmental revenues are those increases in the entity's resources directly related to the environmental management of its resources, whether monetary expression of goods or services of an environmental nature or the reduction of expenses derived from savings obtained from efficient environmental management. The former shall be included in the P&L and the latter in the notes or other information document such as management report and sustainability report.

On the other hand, environmental expenses are those expenses incurred by the company in order to prevent, reduce or repair the damage caused to the environment. It is included as "operating expenses" when incurred, and is subsequently included in the income statement. If the amount is significant, a new account will be created with its corresponding name, and included under "other operating expenses".

3.3.1.3. Provisions and contingencies.

As commented in the previous section “Environmental information in balance sheet”, that we have mentioned the item provision that it is included within the liabilities. In this section, a detailed explanation of provisions and contingencies will be highlighted.

Provisions and contingencies are key items needed to study the environmental accounting information, that from this account we can find the provisions made of an environmental nature from which resources have to be released in order to cancel the obligation of this nature in the future. If the provision is less than expected, it will be

recorded as "Excess Provisions of an Environmental Nature". According to Plan General de Contabilidad 2007 (PGC)[3], we can find this account within group 1, Basic financing, within this group there will be an account with the name "Provision for environmental actions". This account is used to record future obligations that the entity will incur for environmental purposes. The technical definition of this provision account would be: the legal obligations, contractual or implicit commitments of the company or commitments acquired by the company, of undetermined amount, in order to prevent or repair damage to the environment, except that originate from the dismantling, removal or rehabilitation of fixed assets, which will be accounted for as set out in account 143. (Plan General de Contabilidad, 2007).

Based on the above definition, it is understood that only activities carried out to prevent or repair damage to the environment will be recorded in the account (145), according to the General Accounting Plan 2007, and leaving aside those future obligations to dismantle or clean up unused areas, that those future obligations would be pointed inside the account (143), for the purpose of dismantling disused installations.

And in order to treat these provisions when incurred, the General Accounting Plan states that those will be measured at the end of the year at the present value of the best possible estimation of the amount required to settle or transfer the obligation to a third party. (Plan General de Contabilidad, 2007).

3.3.1.4. Environmental information in the notes.

The inclusion of the new records of items in the balance sheet and profit and loss account about environmental performances implemented by the companies with the aim of producing or providing services under the environmentally friendly context should also be disclosed in the notes to the report, giving an explanation of the book value of each item. Such information, and those related with the environmental repercussion that do not appear in the balance and result accounts will also be appeared in the notes in order to complete the annual report with explanations and comments of the movements that have taken place during the year in the environmental field.

The first appearance of accounting standards related to environmental aspects contracted by companies, especially those belonging to the electricity sector, was in

[3] Spanish General Accounting Plan, 2007.

1998, when the rules for adapting the general accounting plan to companies belonging to electricity sector were approved, motivated by Law 54/1997, article 20, from the electric sector, which recommends that companies in the electricity sector include information on environmental actions in their annual accounts in order to increase awareness and consideration of environmental issues at the time of decision-making. According to **Larrinaga y Llull (1999),** this recommendation has been taken up by the sectorial adaptation of the General Accounting Plan, in which note 19 on environmental information is included in the report. The information to be included in Note 19 to the consolidated financial statements, in accordance with the General Accounting Plan adapted to the electricity industry, is as follows:

- Environmental investments with the aim of reducing environmental impact.
- Environmental impact expenses.
- Provisions and contingencies for environmental impacts

And subsequently, according to ICAC (2002), in which the standards for recognition, measurement and reporting of environmental aspects contained in the annual accounts are approved, but which in this case not only requires the publication of environmental accounting information to electricity companies, as mentioned in the previous paragraph, it also requires all those companies that cause a certain environmental impact, regardless of their belonging sector, to publish such information.

Therefore, the following information should be incorporated in the notes:

- **Valuation Regulation**, that includes the valuation criteria, in which those amounts destined to prevent, reduce or repair damage to the environment will be charged to the profit and loss account. The criteria used to consider these amounts as expenses for the year or as an increase in the value of the corresponding asset should also be indicated; a description of the method of estimation and calculation of the provisions derived from the environmental impact and the accounting policies on the restoration of contaminated areas.

- **Fiscal situation,** the information shall be included on the nature and amount of tax incentives applied during the year due to the implementation of activities aimed at reducing environmental impact.

- **Environmental information,** that the following information should be appeared in this part, such as the followings:

  - **Environmental assets**: Information shall be provided on the description and characteristics of the most significant systems, equipment and installations incorporated in the tangible fixed assets and the protection and improvement of the environment, indicating their nature, purpose and book value and the corresponding accumulated depreciation of the same whenever it is possible to determine them individually.

  - **Environmental Expenses:** those expenses incurred in the year for the protection and improvement of the environment, distinguishing between ordinary expenses and those of an extraordinary nature, indicating in all cases their destination.

  - **Environmental provisions:** Risks and expenses for the provisions corresponding to environmental performances, that such expenditure will take place in a future period, with special indication of those derived from litigation in progress, compensation and others, which will be indicated for each provision in which it is made: initial balance, endowments, applications, final balance.

  - **Contingencies**. This is related to the protection and improvement of the environment, including the risks transferred to other entities, the system for evaluating the estimate and the factors on which it depends, with an indication of any effects on assets and results, in which case, the reasons preventing this evaluation should be indicated, such as maximum and minimum risks, operational and financial consequences due to commitments and future investments in the environmental field.

- **Responsibility and compensation:** Full amount of the environmental liabilities and, where appropriate, the compensation to be received.

- **Grants:** Those grants or subsidies that have been received for environmental reasons, and also those revenues produced due to certain activities they have in relation to the environment.

The following table summarizes what we have discussed above.

Note section	Content
Valuation regulation (Note 4)	Accounting criteria for valuation and estimation, as well as for considering expenses or income to be allocated to results, or as an increase in the value of the asset.
Fiscal situation (Note 15)	Information on nature and amount of tax incentives in order to reduce the environment impact though sustainable activities.
Environmental information (Note 22)	In this section will include the following items: - Environmental assets. - Environmental Expenses. - Environmental Provisions. - Contingencies. - Responsibility and compensation. - Environmental incomes: Grants or subsidies.

Table 2. Source: Own elaboration.

3.3.1.5. Environmental information in management reports.

The management report is a mandatory document to be submitted together with the annual accounts and the audit reports. It is normally found at the end of the annual report document.

This report contains both financial and non-financial information for the purpose of complement the information contained in the annual accounts, as a detailed supplement to further enrich the readers of the annual reports in order to facilitate decision-making by stakeholders.

As our work is based on the environmental aspects, those aspects to be responded to and included in the management report will be explained below, based on the guidelines proposed by the CNMV for the preparation of the management report.

In the guide prepared by the CNMV (2013), it proposes that the following information should be included:

- Description of the policies and goals pursued by the companies in order to manage activities of an environmental nature.
- The regulations that have been applied and the level of agreement with respect to their compliance.
- Meaningful actions carried out to improve the environment
- Results of environmental management in relation to the use of raw materials, water, energy, and on the management of polluting gases, waste and biodiversity.

Following the guidelines above, the management reports in the environmental field of the electricity companies under study will be analyzed.

3.3.2. Voluntary environmental information.

3.3.2.1. Environmental information in Sustainability Report

The sustainability report consists of a documented report that seeks to inform external and internal stakeholders about the company's actions, both in terms of production and service provision that cause a certain impact on the social, economic and environmental spheres.

Those Spanish companies listed on the IBEX-35 stock exchange tend to publish the sustainability report nowadays, in order to improve reputation and enhance shareholder value, also used as a measure to avoid possible litigation due to environmental impacts. They also use this report to inform about the impacts caused in the economic, environmental and personal fields due to the business activity. And in relation to the environment, companies usually report the impact caused, such as C02 emissions,

damage to biodiversity, consumption of materials, and among others, and the management measures taken to mitigate these effects.

Normally, companies publish sustainability reports based on the guidance provided by the GRI[4], the world's leading sustainability reporting body, whose purpose is to promote reporting instructions containing the three areas of sustainable development - economic, social and environmental - from which it provides the necessary guidelines and direction for writing and disseminating the report.

The characteristics of the use of the GRI are based, on the one hand, on the voluntary nature of its use, and on the other hand, on the freedom of use of its guidelines for any company, regardless of the geographical area, type or size. Besides, it ensures that companies use the same structure to write the reports, and thus achieve homogeneity, and therefore comparability between companies.

As our work is based on the publication of environmental information, we will analyze the environmental indicators contained in the sustainability reports of the electric companies under study, those indicators of which can be observed in the following figure. (Figure 3).

Figure 3: Environmental indicators according to GRI 2016

GRI 301: Materials 2016	**GRI 305: Emissions 2016**
GRI 302: Energy 2016	**GRI 306: Effluents and Waste 2016**
GRI 303: Water and Effluents 2018	**GRI 307: Environmental Compliance 2016**
GRI 304: Biodiversity 2016	**GRI 308: Supplier Environmental Assessment 2016**

Figure 3. Source: nextlevelsustainability.com

[4] GRI: Global Reporting Initiative.

4. Objectives.

The objective proposed for this work consists of analyzing the degree of importance of the environmental information published by the companies belonging to the electricity sector, as well as ascertaining whether they comply with accounting regulations regarding the publication of environmental information, both mandatory environmental information, which are those published in the annual accounts, and voluntary environmental information, which is contained in the annual sustainability report. And on the other hand, the information will also be analyzed regardless of whether it is financial or non-financial, that is, to determine the quantity and quality of environmental information contained in annual reports.

The companies under study, will be those belonging to the electricity sector that some belongs to the IBEX 35 and others not. The period from which we will carry out this analysis will be the years 2018 and 2019 for all the companies under analysis as these periods are more recent to our date of completion of this work.

5. Justification.

The main idea of carrying out the study of the environmental information contained in the annual accounts corresponds to the importance of the annual reports in revealing the environmental practices that have been undertaken, given that these reports constitute a communication link between the companies and the different stakeholders.

The reason that has led us to analyze spanish electricity companies is that some of them belong to the ten most polluting companies in Spain, of which they are responsible for the emission of 25% of a total of 341 million tonnes of C02 emitted by Spain in 2018, contributing to climate change. **(Observatorio de la sostenibilidad, 2019).**

Ranking of the 10 most polluting companies in Spain

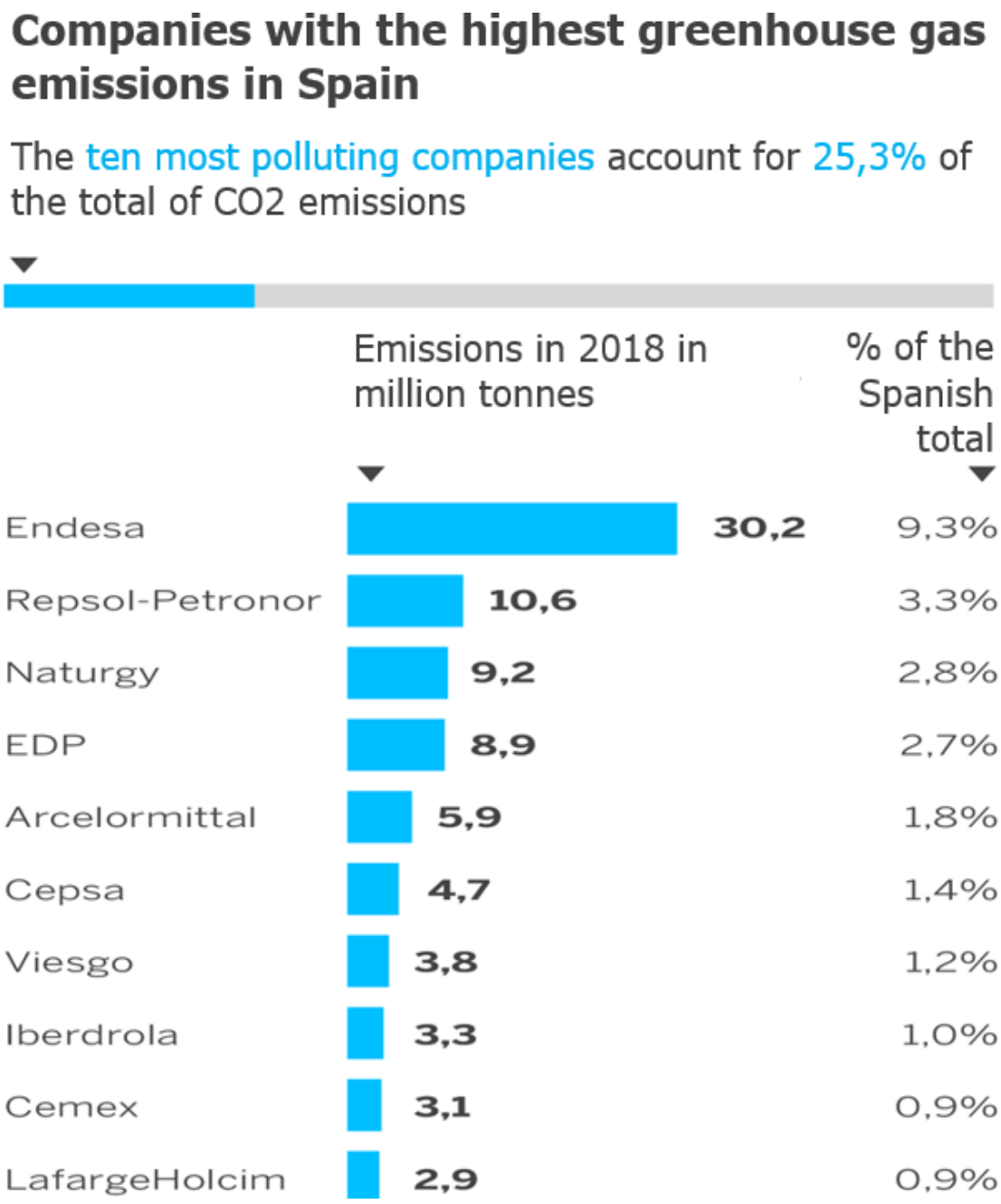

Figure 4. Source: elpaís.com

As can be seen from the figure above, some Spanish electricity companies are included among the ten most polluting companies, with Endesa standing out, which in addition to leading the ranking, with a total emission of 30.2 tonnes of C02 into the atmosphere, its emission record is largely significant in comparison with the other companies included in the ranking. Next, in second place is Repsol, then Naturgy, EDP, CEPSA, VIESGO, and IBERDROLA as the last in the ranking of the most polluting electricity companies. And on the other hand, apart from the environmental impact of the electricity companies, it is worth highlighting their contribution to the Spanish GDP with just over 1.8% of the total

GDP in 2016 (figure 5), and that according to a study it is expressed that "the relations between GDP and carbon dioxide emissions are still not decoupled, so it can be seen that in Spain between 1990 and 2017 emissions rose by 17% and GDP by 73%, while in Europe in the same period emissions fell by 22% and GDP grew by 58%".

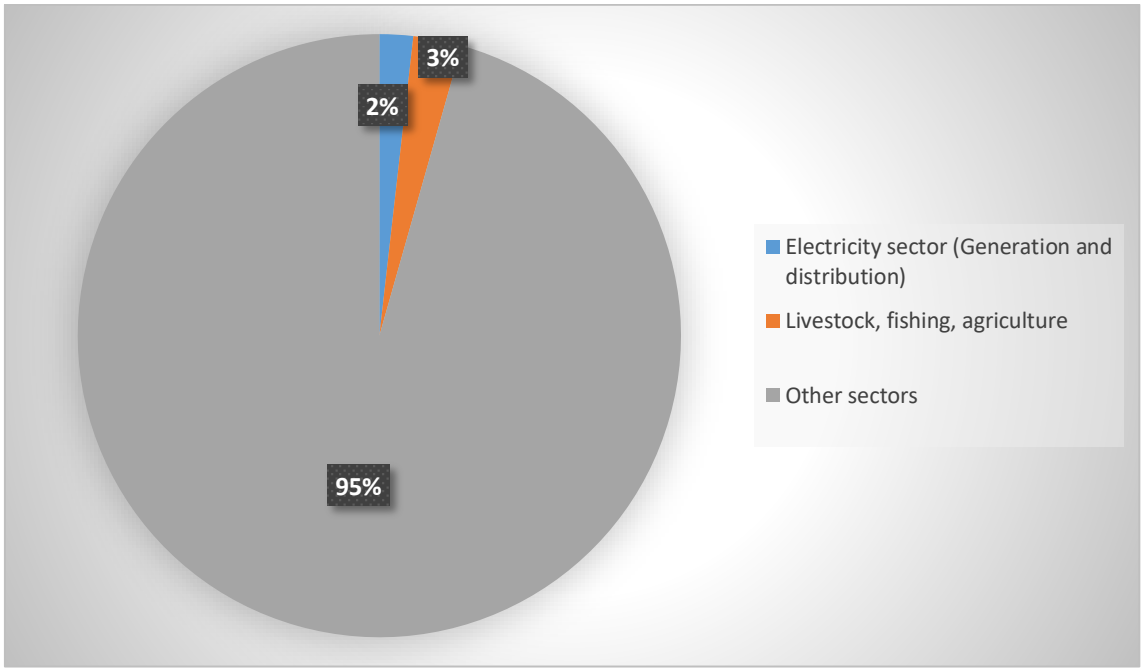

Figure 5. Contribution of the sectors to the Spanish GDP 2016. Own elaboration based on data from energíaysociedad.es

Therefore, noting that the electricity sector is one of the main causes of pollution, we will analyze the electricity companies shown in the figure above, Endesa, Repsol (now also offering electricity), Naturgy, EDP, Cepsa (also electricity nowadays), Viesgo, Iberdrola and Red Electrica Española. But, on the other hand, it would also be interesting to analyze the environmental information of some other electricity companies producing renewable energy such as Audax and Holaluz because the renewables has experienced a slight growth from 2016 according to Gesternova (2017), which contributed to the national GDP in the same year with 8511 million euros. In addition, renewable companies had a positive impact on the economy and the environment, contributing to reduce emissions of 52.2 million tons of C02, so that at the same time they reduced the cost of emission rights by 279 million euros.

6. Preliminary design of the investigation.

6.1. Companies under study

For the purpose of analyzing the environmental information contained in the annual reports or annual accounts, those electricity companies that belong to the ranking of the ten most polluting companies, another additional company (Red Electrica), and some renewable electricity companies will be taken into account for the study.

From these companies selected to carry out this analysis, the financial-economic information will be extracted, i.e. the annual accounts deposited by the companies, as well as the management and sustainability report, from the website of each of the companies from which the analysis will be carried out.

The annual period under analysis for those entities will correspond to the year 2018 because we have cited the companies that emit the most pollution during the same year, and we also include 2019 in order to analyze and compare with the previous year possible variations in environmental actions. The following table shows the electrical companies selected to carry out the corresponding analysis of environmental information. (Table 3)

Electric companies selected.

	Electric companies
1.	endesa
2.	IBERDROLA
3.	RED ELÉCTRICA DE ESPAÑA
4.	Naturgy
5.	edp
6.	REPSOL
7.	CEPSA
8.	viesgo
9.	holaluz
10.	audax renovables

Table 3. Source: Own elaboration.

6.2. Methodology

To carry out the analysis of the environmental information of the electrical companies, the methodology of "content analysis" has been used, in which I consider that this method would be the most suitable for achieving the objectives set for this work. Furthermore, according **to Gray et al (1995); Llena et al. (2007), cited by Acerete, Llena and Moneva (2007, p. 6)** "this technique is used successfully and commonly in works related to environmental and social information and reporting."

The information required to carry out this analysis of the environmental information contained in the annual reports has been obtained mainly from the websites of those electricity companies**,** where those websites offer us information about the economic and financial information, or, in other words, the annual reports, all corresponding of the most recent given years 2018 and 2019. On the other hand, the option would also be available to contact the companies under study to obtain the necessary information, to visit the database available on the CNMV[5] website to download the annual reports from that page, and/or as a last resort, to access the SABI[6] database to facilitate the search for the information. When the annual accounts were obtained, they were explored for possible sources of environmental information contained in the balance sheets, income statements, reports and management reports of each electricity company.

After the previous step of defining which documents will be explored and analyzed, as a second step, a classification scheme must be defined that includes the environmental items to be analyzed, in order to facilitate the weighting of each item. The table below shows the mandatory items to be taken into account for the analysis. (Table 4)

[5] CNMV: Comisión Nacional del Mercado de Valores (English: National Securities Market Comission).
[6] SABI: Sistema de Análisis de Balanzas Ibéricos (English: Iberian Balance Analysis System), available in the database of the online library of the Universitat Jaume I.

Classification of items to be analyzed

- Note 4. Valuation standards
- Note 14. Environmental Provisions and Contingencies
- Note 15. Fiscal Situation
- Note 22. Environmental Investments
- Note 22. Environmental Expenses
- Note 22. Environmental Provisions and Contingencies
- Note 22. Environmental incomes
- Environmental information in the balance sheet
- Environmental information in Profit and Loss account
- Environmental information in Management Report

Table 4. Source: Own elaboration.

These first ten items have been chosen based on the review of the regulations established by the ICAC Resolution of 2002 in relation to the environmental information that companies should present in the balance sheet, profit and loss account and in the notes. Specifically, the sections on valuation and registration, tax incentives for environmental actions, and information on the environment contained in the notes to the annual accounts.

As regards the scoring of environmental information in the management reports, the guide proposed by the CNMV will be applied as a basis, in accordance with the form of presentation of such information.

Finally, as a third and final step, the items with scores between 0 and 1 have been assessed depending on whether they present environmental information and on the quality of the information presented. **(Acerete, Llena and Moneva, 2007).**

The following table shows in detail the scoring system that each item will obtain.

Score	Definition	Criteria
0	The entity does not issue information about the item.	No mention
0,5	Few information is provided	It is only expressed in a generic way, without detailing neither quantitative nor qualitative data.
1	The information provided is both qualitative and quantitative	Of the information provided, besides being of a qualitative nature, information is also shown in numerical form.

Table 5. Source: Own elaboration based on data from Acerete, Llena and Moneva, 2007.

After analyzing the environmental information in the annual accounts, as the second part of this work, the sustainability reports of each company will be analyzed. To do this analysis, an exploration has been made in this report in search of indicators of environmental dimension proposed by GRI.

According to a study carried out by García-Martínez et al. (2007), "a system can be established to evaluate each one of the environmental indicators contained in the sustainability reports". As can be seen below:

- It will get 0 if there is no information about the indicator.
- It will get 1 if the indicator is present but incomplete.
- It will get 2 if there is information on the indicator, but no quantitative data.
- It will get 3 if there is information on the indicator, both qualitative and quantitative.

7. Analysis of mandatory environmental information.

After carrying out the exploratory study of the Annual Accounts, management report and sustainability report for 2018 and 2019, we observed that each of the electricity companies provides significant environmental information. Nevertheless, there are differences in the quantity and quality of the environmental information of each company,

of which the environmental information supplied by each company will be shown below, together with a table in which each environmental analyzed item will be scored.

Those items that get a score of 0 will not be commented, it will be understood as lack of information. To give a general example, all of the electricity companies that have carried out the study, none of them disclose information of an environmental nature both in the financial statements and in the section on the fiscal situation included in the notes.

7.1. Endesa

ENDESA, S.A. is a Spanish electricity company established in 1944, which currently has its main offices and administrative headquarters in Madrid. This company is mainly dedicated to the electricity business and operates nationally and internationally. During 2018, this company led the ranking of the ten most polluting companies, with total emissions of 30.2 million tons of C02.

Items	Score obtained (2018)	Score obtained (2019)
Note 4. Valuation standards	1	1
Note 14. Environmental Provisions and contingencies	0	0
Note 15. Fiscal Situation	0	0
Note 22. Environmental Investments	1	1
Note 22. Environmental Expenses	1	1
Note 22. Environmental Provisions and Contingencies	1	1
Note 22. Environmental incomes	0	0
Environmental information in the balance sheet	0	0
Environmental information in Profit and Loss account	0	0
Environmental information in Management Report	1	1
Total	5	5
Total % of items mentioned	50%	50%

Table 6. Source: Own elaboration.

- *Note 4. Valuation standards:* Endesa refers to the valuation criteria for environmental items in section k "environmental assets" included in note 4 "Accounting and measurement policies", of which, in the case of expenditure of an environmental nature, whether for penalties or compensation to third parties for environmental damage, would be included under the heading of "other operating expenditure - external services". On the other hand, if they are environmental elements incorporated into the company's assets for lasting use with the intention of minimizing environmental impact, they would be included in the tangible and intangible fixed asset items, valued at their acquisition or production price and depreciated on a straight-line basis over their useful life.

- *Note 15. Environmental information:* The company mentions in note 6.4 that it incurred environmental expenses in 2018 and 2019, amounting to 110 and 177 million euros, respectively, of which an increase in environmental efforts during 2019 can be seen.

  On the other hand, with regard to investments of an environmental nature, for the protection of the environment it can be seen that there was an increase of up to 131 million euros in 2019, compared to 70 million in 2018.

  And finally, in the provisions and contingencies of an environmental nature, it should be noted that the company allocated in 2018 and 2019, 364 and 359 million euros respectively as a provision for C02 emissions. Nevertheless, in contingencies, Endesa does not present information on this matter.

- *In the management report:* Endesa mentions the possible environmental risks that may arise from fines, damages or expenses of this type. Therefore, in order to avoid negatively affecting the company's financial statements, affecting the interests of shareholders and investors, Endesa has taken out an insurance policy to cover environmental liabilities of up to 150 million euros, if there are any allegations of pollution. On the other hand, what is not mentioned in the report on environmental information, is mentioned in the management report, from which it is detailed that Endesa incurred EUR 131 million in investments (wind and photovoltaic power

construction) and EUR 177 million in expenses, such as the construction of anti-collision devices, BOSQUEENDESA regeneration project, and so on both of an environmental nature. Finally, ENDESA also publishes non-financial indicators relating to environmental performance, in compliance with CNMV guidelines.

7.2. Iberdrola

Iberdrola, S.A. is an electricity company incorporated in Spain and has its registered office at Plaza Euskadi 5, in Bilbao. The company is engaged in the production of electricity from renewable and non-renewable sources, the purchase and sale of electricity and gas in wholesale markets, the transmission and distribution of electricity, the marketing of electricity, gas and associated energy services, and other activities, mainly related to the energy sector. In 2018, Iberdrola ranks eighth among the ten most polluting companies, with emissions of 3.3 million tonnes of C02.

Items	Score obtained (2018)	Score obtained (2019)
Note 4. Valuation standards	1	1
Note 14. Environmental Provisions and contingencies	1	1
Note 15. Fiscal Situation	0	0
Note 22. Environmental Investments	0	0
Note 22. Environmental Expenses	0	0
Note 22. Environmental Provisions and Contingencies	0	0
Note 22. Environmental incomes	0	0
Environmental information in the balance sheet	0	0
Environmental information in Profit and Loss account	0	0
Environmental information in Management Report	0.5	0.5
Total	2.5	2.5
Total % of items mentioned	25%	25%

Table 7. Source: Own elaboration.

- *Note 4. Valuation standards:* Iberdrola mentions in the accounting standards, specifically in the heading "Other provisions", the manner in which provisions will be made to cover environmental damage.

- *Note 14. Environmental Provisions and contingencies:* Iberdrola provides information on provisions for C02 emissions in note 26 (Other provisions), stating that the balance in 2018 and 2019 amounted to 429,537 thousand and 505,827 thousand euros, respectively. However, in relation to environmental contingencies, the company only indicates that it will have possible income from legal actions taken, but does not indicate the amount.

- *Note 22. Environmental information:* Iberdrola does not include the note "information on the environment" in the memories.

- *Environmental information in Management Report:* Regarding this item, the company only describes the environmental policies and commitments, without disclosing any quantitative data on the environmental issue.

7.3. Red Eléctrica de España

Red Electrica Corporación, S.A. is an electricity company with its registered office and tax domicile in Alcobendas (Madrid). The company is mainly engaged in the transmission of electricity, system operation and management of the transmission grid in the Spanish electricity system. The company operates both nationally and internationally. Although REE is not among the most polluting companies, it is known that this company has emitted 39,272 tons of C02 equivalent during 2018, an insignificant amount compared to the other companies.

Items	Score obtained (2018)	Score obtained (2019)
Note 4. Valuation standards	1	1
Note 14. Environmental Provisions and contingencies	0	0
Note 15. Fiscal Situation	0	0
Note 22. Environmental Investments	1	1
Note 22. Environmental Expenses	1	1
Note 22. Environmental Provisions and Contingencies	0	0
Note 22. Environmental incomes	0	0
Environmental information in the balance sheet	0	0
Environmental information in Profit and Loss account	0	0
Environmental information in Management Report	1	1
Total	4	4
Total % of items mentioned	40%	40%

Table 8. Source: Own elaboration.

- *Note 4. Valuation standards:* REE defines in the section "environment" of note 4 of the report, the way in which expenses and investments of an environmental nature will be recorded and valued.

- *Note 22. Environmental Investments:* With regard to investments of an environmental nature, 1.426 and 3.217 thousand was allocated to environmental investment projects among 2018 and 2019, respectively, including environmental impact studies, environmental supervision of work and the application of preventive and corrective measures.

- *Note 22. Environmental expenses:* REE has allocated 23.500 and 26.149 thousand euros in 2018 and 2019, respectively, as ordinary expenses in order to protect the environment and prevent possible damages to it. In accordance with the environmental commitment adopted by the company in regard to the protection of

biodiversity (implementation of bird-saving devices to prevent birds from colliding with electrical cables), fire prevention, landscape integration, climate change and pollution prevention.

- *Environmental information in Management Report:* As part of this report, the company discloses its environmental commitment mentioned in note 15 (Environmental expenses), and the amount allocated to environmental expenses and investments.

  It also states that, in order to improve its environmental performance, the Company has implemented an Environmental Management System certified by ISO 14001 and EMAS.

  And finally, REE shows the environmental indicators of a non-financial nature in relation to gas emissions, consumption of natural resources, generation of waste, and environmental accidents, which according to the company, during 2019 there has been a decrease in most of the indicators compared to the previous year.

7.4. Naturgy

Naturgy Energy Group, S.A. is a public limited company created in 1843 which has its registered office at Avenida San Luis, number 77, in Madrid. Naturgy and its subsidiaries have as their main activity the production and trade of gas and electricity, and any other existing source of energy. During 2018, of the ten most polluting companies, Naturgy was in third place, with 9.3 million tons of C02 emitted.

Items	Score obtained (2018)	Score obtained (2019)
Note 4. Valuation standards	1	1
Note 14. Environmental Provisions and contingencies	1	1
Note 15. Fiscal Situation	0	0
Note 22. Environmental Investments	1	1
Note 22. Environmental Expenses	1	1
Note 22. Environmental Provisions and Contingencies	0.5	0.5
Note 22. Environmental incomes	0	0
Environmental information in the balance sheet	0	0
Environmental information in Profit and Loss account	0	0
Environmental information in Management Report	1	1
Total	5.5	5.5
Total % of items mentioned	55%	55%

Table 9. Source: Own elaboration.

- *Note 4. Valuation standards:* Naturgy clearly defines how environmental expenses, assets, and provisions will be accounted for.

- *Note 14. Environmental Provisions and contingencies:* The Company provides information on provisions and contingencies under the heading "Current provisions", which includes the estimated C02 emissions to be provided, for an amount of 153 million euros at the end of 2019, and 143 million of euros in 2018.

- *Note 15. Environmental Investments:* During 2018, Naturgy stands out for having allocated 314 million euros in environmental investments and 422 million euros during 2019 for the same item, of which the purpose of these investments is to

develop new renewable generation projects (wind and photovoltaic farms) in order to reduce the emission of C02.

- *Note 15. Environmental Expenses:* Naturgy incurred in expenses for the environmental management of the facilities for an amount of 98 million euros and 81 million euros in 2018 and 2019, respectively.

- *Note 15. Environmental provisions and contingencies:* Naturgy mentions that it has insurance policies to cover possible contingencies, but does not provide any quantitative data both in 2018 and 2019. On the other hand, as far as provisions are concerned, nothing is mentioned.

- *Environmental information in Management Report:* Naturgy, as well as commenting on measures for the protection, prevention and improvement of the environment, and commitments for a pollution-free future, reports in the management report for the period 2018 and 2019 the environmental performance, expressed in quantities incurred during these periods following the guidelines offered by CNMV. It also reports on the environmental risk situation, showing a downward scenario due to the implementation of an Integrated Management System, certified and audited annually by AENOR.

7.5. EDP

EDP is a multinational company of Portuguese origin that also operates in Spain. Its activity is based on the production and marketing of electricity and gas. According to the report on the ten most polluting companies in 2018, EDP is positioned in fourth place, behind Naturgy, emitting 8.9 million tons of C02 in that year.

Items	Score obtained (2018)	Score obtained (2019)
Note 4. Valuation standards	0	0
Note 14. Environmental Provisions and contingencies	0	0
Note 15. Fiscal Situation	0	0
Note 22. Environmental Investments	1	1
Note 22. Environmental Expenses	1	1
Note 22. Environmental Provisions and Contingencies	1	1
Note 22. Environmental incomes	1	1
Environmental information in the balance sheet	0	0
Environmental information in Profit and Loss account	0	0
Environmental information in Management Report	1	1
Total	5	5
Total % of items mentioned	50%	50%

Table 10. Source: Own elaboration.

- Note 4: EDP does not provide information in the notes about the valuation standards for environmental items.

- Note 15: With respect to these items, EDP indicates in the note 48 “environmental matters”, the investments on an environmental nature incurred in 2018 and 2019 recognized as property, plant, equipment and intangible assets, the amounts were 68,987 and 88,317 thousand of euros, respectively. As regards the expenses of an environmental nature, the amounts incurred during 2018 and 2019 were 195,496 and 265,879 thousand, respectively. And finally, with regard to environmental provisions, EDP allocated 58,900 and 85,244 thousand euros during 2018 and 2019, respectively, in order to cover the costs of dismantling, restoring and decontaminating the place where the power plants are located.

- Note 15: Environment incomes: Regarding this item, it is not related to the income from subsidies, which in fact the company has not mentioned anything about this. But nevertheless, it is necessary to highlight the environmental income that the company has obtained in 2018 and 2019 from the sale of environmental waste and by-products, for amounts of 6,854 and 4,662 thousand euros, respectively.

- Environmental information in Management Report: EDP has included a specific section on the environment in its management report for both years, detailing its environmental policies and commitments, the investments and expenditure mentioned above, and the amounts of C02 issued.

7.6. Repsol

Repsol is a group of companies belonging to the energy sector that carries out activities related to hydrocarbons. Apart from the besides, after the acquisition of Viesgo in 2018, it is also engaged in the generation and marketing of electricity and natural gas in Spain. It is known that during 2018, Repsol emitted 10.6 million tons of C02, just being behind of Endesa.

Items	Score obtained (2018)	Score obtained (2019)
Note 4. Valuation standards	0.5	0.5
Note 14. Environmental Provisions and contingencies	1	1
Note 15. Fiscal Situation	0	0
Note 22. Environmental Investments	1	1
Note 22. Environmental Expenses	1	1
Note 22. Environmental Provisions and Contingencies	0.5	0.5
Note 22. Environmental incomes	0	0
Environmental information in the balance sheet	0	0
Environmental information in Profit and Loss account	0	0
Environmental information in Management Report	1	1
Total	5	5
Total % of items mentioned	50%	50%

Table 11. Source: Own elaboration.

- Note 4. Valuation standards: Repsol only refers to how environmental provisions and contingencies are to be recorded and does not provide information on other items such as investments or expenses.

- Note 14. Environmental Provisions and contingencies: Repsol describes the provision made to cover C02 emission rights and also provides information in a quantitative manner.

- Note 15. Environmental Investments: Repsol comments that it allocated 241 and 180 million euros in 2018 and 2019, respectively, mainly to improving energy efficiency, waste minimization and so on.

- Note 15. Environmental expenses: Repsol records environmental expenses on supplies and other operating expenses, which amounted to 83 and 94 million euros

in 2018 and 2019, respectively, of which the management of waste, water and the protection of the atmosphere should be highlighted.

- Note 15. Environmental provisions and contingencies: Repsol allocated 53 and 99 million euros in 2018 and 2019, respectively, to this concept without specifying for what purpose.

- Environmental information in Management Report: Repsol has included a specific section on the environment in its management report for both years, detailing its environmental policies and commitments, the investments and expenditure mentioned above, and the amounts of C02 issued in figures.

7.7. Cepsa.

Cepsa was created in 1929 and has its central office in Madrid. The company is dedicated to the extraction and exploitation of crude oil and natural gas, as well as the production of oil derivatives and their distribution. The company is also dedicated to the generation and distribution of electricity. In 2018, Cepsa emitted a total of 4.7 million tons of C02.

Items	Score obtained (2018)	Score obtained (2019)
Note 4. Valuation standards	1	1
Note 14. Environmental Provisions and contingencies	1	1
Note 15. Fiscal Situation	0	0
Note 22. Environmental Investments	1	1
Note 22. Environmental Expenses	1	1
Note 22. Environmental Provisions and Contingencies	1	1
Note 22. Environmental incomes	0	0
Environmental information in the balance sheet	0	0
Environmental information in Profit and Loss account	0	0
Environmental information in Management Report	1	1
Total	6	6
Total % of items mentioned	60%	60%

Table 12. Source: Own elaboration.

- *Note 4. Valuation Standards:* Cepsa clearly defines how environmental expenses, assets, and provisions will be accounted for.

- *Note 14. Environmental provisions and contingencies:* Cepsa made provisions to, on the one hand, meet obligations for the risk of gradual soil pollution not covered by insurance policies, and on the other hand, to meet obligations or commitments to prevent, reduce and repair damage to the environment, with charges for professional services or repair and maintenance. Cepsa has also mentioned it in section 28 "Environmental aspects", that in our case is note 22. Environmental provisions and contingencies.

- *Note 22. Environmental investments:* Cepsa reports in Section 28 "Environmental Issues" of the Notes, the environmental investments made together with the

accumulated depreciation of these investments during 2018 and 2019, with total balances at year-end of 181,260 and 263,750 thousand of euros, respectively, mainly aimed at reducing C02 and NOX emissions, treating harmful liquid discharges and improving equipment.

- Note 22. Environmental expenses: It can be seen that the company allocated 11,761 and 33,577 thousand euros during 2018 and 2019 respectively, for various reasons, such as to provide for environmental provisions and the repair and conservation of the environment.

- Environmental information in Management Report: Like other companies, Cepsa includes a lot of environmental information in its management reports.

7.8. Viesgo

Viesgo is an energy company whose activity consists of the generation of electricity both from conventional sources such as coal, and from renewable sources such as wind or water, and its subsequent distribution. In 2018, Viesgo emitted a total of 3.8 million tons of C02.

Items	Score obtained (2018)	Score obtained (2019)
Note 4. Valuation standards	1	1
Note 14. Environmental Provisions and contingencies	0	0
Note 15. Fiscal Situation	0	0
Note 22. Environmental Investments	0	0
Note 22. Environmental Expenses	0	0
Note 22. Environmental Provisions and Contingencies	0	0
Note 22. Environmental incomes	0	0
Environmental information in the balance sheet	0	0
Environmental information in Profit and Loss account	0	0
Environmental information in Management Report	0	0
Total	1	1
Total % of items mentioned	10%	10%

Table 13. Source: Own elaboration.

Through the information provided by the table above, we can see that Viesgo provides little environmental information. It has only indicated in the years 2018 and 2019 the criteria followed to record environmental assets, expenses and provisions if there were any according to ICAC resolution (2002). And with respect to the other items, Viesgo has not mentioned any of them.

7.9. Holaluz

Holaluz-Clidom, S.A. is an energy company created in 2010, the newest of all the companies under study. The company is dedicated to the purchase and sale of 100% renewable electrical energy.

Items	Score obtained (2018)	Score obtained (2019)
Note 4. Valuation standards	0	0
Note 14. Environmental Provisions and contingencies	0	0
Note 15. Fiscal Situation	0	0
Note 22. Environmental Investments	0	0
Note 22. Environmental Expenses	0	0
Note 22. Environmental Provisions and Contingencies	0	0
Note 22. Environmental incomes	0	0
Environmental information in the balance sheet	0	0
Environmental information in Profit and Loss account	0	0
Environmental information in Management Report	0	0
Total	0	0
Total % of items mentioned	0%	0%

Table 14. Source: Own elaboration.

As we can see from the table above, it should be mentioned that Holaluz does not provide any type of information of an environmental nature either in 2018 or 2019, as indicated in section 20 included in the notes, that because the company's activity does not belong to the scope of the European regulations on CO2 emissions, whose regulation is to limit CO2 emissions to specific parameters that cannot be exceeded. Therefore, it does not need to make any provision for this concept.

The same occurs with other items in relation to the fact that they do not provide environmental information.

7.10. Audax

Audax renovables, S.A. is a company established in Barcelona in 2000, whose activity consists in the production and commercialization of electric energy from renewable energy sources. It is also dedicated to the trade of gas. The company is known for producing electricity through wind farms.

Items	Score obtained (2018)	Score obtained (2019)
Note 4. Valuation standards	1	1
Note 14. Environmental Provisions and contingencies	0	0
Note 15. Fiscal Situation	0	0
Note 22. Environmental Investments	0	0
Note 22. Environmental Expenses	1	1
Note 22. Environmental Provisions and Contingencies	0	0
Note 22. Environmental incomes	0	0
Environmental information in the balance sheet	0	0
Environmental information in Profit and Loss account	0	0
Environmental information in Management Report	1	1
Total	3	3
Total % of items mentioned	30%	30%

Table 15. Source: Own elaboration.

- Note 4. Valuation standards: Audax clearly defines how environmental expenses, assets, and provisions will be accounted for.

- Note 15. Environmental Expenses: Audax comments in note 26 "environment" of the report that the company incurred in environmental expenses for the preservation of fauna for an amount of 129 and 121 thousand of euros in 2018 and 2019, respectively.

- Environmental information in management report: Audax includes in the management report a section on environmental matters indicating the environmental expenses incurred in 2018 and 2019.

8. Analysis of the sustainability reports.

This section will analyze the level of application of those environmental dimension indicators contained in the sustainability reports recommended by GRI of the electricity companies under study. Due to the fact that several companies have not yet published such report in 2019, we will proceed to analyze those of 2018.

They will be analyzed in the following tables, scoring each indicator presented by each company according to the parameters discussed in the methodology.

Indicators	END	IBER	REE	NAT	EDP	REP	CEPS	VIES	HOLA	AUD
Materials (GRI 301)	3	3	3	0	3	0	3	3	0	0
Energy (GRI 302)	3	3	3	3	1	3	3	0	0	0
Water and Effluents (GRI 303)	3	3	3	0	1	3	3	3	0	0
Biodiversity (GRI 304)	3	3	3	3	2	3	2	2	0	0
Emissions (GRI 305)	3	3	3	3	3	3	3	3	0	0
Effluents and waste (GRI 306)	3	3	3	3	1	3	3	0	0	0
Environmental Compliance (GRI 307)	3	3	3	0	0	0	3	0	0	0
Supplier (GRI 308)	2	0	2	3	0	0	2	0	0	0

Table 16. Source: Own elaboration.

Next, we will obtain the mean as average of each of the environmental indicators presented by the companies, and then comments will be made on it.

Indicators	Mean
Materials (GRI 301)	1.8
Energy (GRI 302)	1.9
Water and Effluents (GRI 303)	1.9
Biodiversity (GRI 304)	2.1
Emissions (GRI 305)	2.4
Effluents and waste (GRI 306)	1.9
Environmental Compliance (GRI 307)	1.2
Supplier (GRI 308)	0.9

Table 17. Source: Own elaboration.

As can be seen from the table above, almost all the electricity companies have published their sustainability report using the GRI guidelines for its preparation, as well as the environmental dimension, except for Holaluz and Audax, which have not. With respect to these two companies, it could be taken into consideration that due to the activities they undertake, they are environmentally responsible because they produce and distribute electrical energy from renewable sources, and therefore it is not necessary to present such a report.

Among all the environmental indicators, we can highlight the GRI 305 emissions, as the indicator that most companies provide information in a broad way, with both quantitative and qualitative data, whose content consists in including measures to reduce emissions, which in fact, all companies indicate that they have been able to reduce emissions compared to the previous year, by increasing renewable sources and decreasing conventional sources to produce electricity. It also expresses them in a quantitative way.

On the other hand, the environmental indicator that has received the least evaluation has been suppliers (GRI 308), since some mention it but provide very limited information and others do not mention them. This may be because of the difficulty of collecting the information or because companies consider them to be of little relevance.

And finally, although other indicators have obtained an intermediate average score such as biodiversity, water discharges, materials and energy uses, and environmental compliance, there are still many companies that provide information on these indicators. But the average for these indicators has declined because some companies have not provided sufficient quantitative and qualitative information or have not even included any information about it.

Another point to highlight in this section is that in the case of Iberdrola, the information on expenses, investments and provisions is included in the sustainability report instead of in the report, which in the previous section we commented was not included in the notes. This explains why, unlike the other companies, Iberdrola treats the environmental information that should be contained in note 15 as voluntary information, thus not complying with ICAC 2002 regulations. However, despite this non-compliance, the company continues to provide both quantitative and qualitative information on the subject, stating that the company has allocated.

Conclusion

After carrying out the corresponding analyses in relation to both mandatory and voluntary environmental information contained in the annual accounts and sustainability reports of these ten electricity companies under analysis, of which, as mentioned above, we have used a weighting system to score each company in relation to the quantity and quality of the environmental information they present. Furthermore, the reliability of the information contained in these reports can be assured as they have been verified by independent external audit like KPMG audit team.

Well, according to the analysis of the environmental information contained in the annual accounts, Cepsa is the company that has obtained the best score, with 60% in both years, differentiating it from other companies with similar scores by providing more information on the provisions and contingencies of an environmental nature and of better quality.

Followed by Cepsa, we can mention the companies Endesa, REE, EDP, Repsol and Naturgy, as companies that have obtained a slightly lower score than Cepsa due to the fact that they have not provided sufficient information on environmental provisions, i.e. some are indicated in Note 14 on Provisions and Contingencies but not in the Note on Environmental Information and vice versa.

Finally, the companies with the lowest scores were Iberdrola, Viesgo, Audax and Holaluz. Of these companies, Iberdrola and Audax, at least indicated in Note 4 on the recording and measurement of environmental items, expenses and provisions of an environmental nature, but did not indicate the other items. Viesgo merely indicates the criteria used to record environmental items without mentioning any of the other items. And Holaluz, barely mentions anything about the environmental issue arguing that the company does not belong to the European Regulation of C02 emissions, thus obtaining 0%.

On the other hand, with regard to the environmental information contained in the sustainability reports, as can be seen in the table in the previous section, all the electricity companies, with the exception of Holaluz and Audax, present environmental indicators following the recommendation of the GRI, and also with high quality information.

As a conclusion, it can be highlighted that comparing the result of the analysis of the present work with previous works focused on different sectors such as García-Martínez (2011) and Acerete, Llena and Moneva (2007), the scores obtained have been slightly higher. This is explained by the fact that companies allocate more resources to repair or reduce environmental damage caused by production, and also publish more information of an environmental nature, motivated by the increase in awareness on the part of companies to bring sustainable development that benefits everyone, especially the environment.

But despite the fact that companies publish environmental information in a significant way, it is worth mentioning that most of the information is positive, leaving aside those of a negative nature such as environmental litigation, to a simple comment that “there is judicial litigation of an environmental nature”, or that “insurance policies have been taken out to cover environmental damage”.

This is because companies try to highlight as much as possible those aspects that are favourable to them, as this will meet the expectations of the stakeholders, and will also improve the business reputation, an invaluable asset of great importance for companies, and leave aside the negative ones as this will produce opposite effects, such as the possibility of incurring millions of euros in fines, of which some companies studied have already incurred them.

From my point of view, although electricity companies have the potential to improve environmental information in their annual reports in order to improve transparency that can be achieved by providing more significant environmental information in their annual reports I believe that they are making a great effort in both the political and economic spheres to prevent, mitigate and restore damage to the environment through the

implementation of decontamination measures, thereby contributing to improve stakeholder confidence and achieving a pollution-free world.

Finally, I believe that this work can serve as an aid for future research in the same field as this work, and also this present work can be further improved, such as by monitoring the annual reports over subsequent years of the same electricity companies in order to analyze the trend, analyzing more companies including foreign companies so that different variables may be found and national companies can be proposed to incorporate them, and also extending to other sectors to find out the difference between them in providing environmental information.

Annex 1. Example of the environmental information contained in the annual accounts and management reports: The case of Naturgy in 2018.

Note 4: Valuation Standards.

Los gastos derivados de las actuaciones empresariales encaminadas a la protección y mejora del medioambiente se contabilizan como gasto del ejercicio en que se incurren.

Cuando suponen incorporaciones al inmovilizado material, cuyo fin sea la minimización del impacto medioambiental y la protección y mejora del medioambiente, se contabilizan como mayor valor del inmovilizado.

3.4.17 Provisiones

Se reconocen las provisiones cuando Naturgy tiene una obligación presente, ya sea legal o implícita, como resultado de sucesos pasados; hay más probabilidades de que vaya a ser necesaria una salida de recursos para liquidar la obligación que de lo contrario; y el importe se ha estimado de forma fiable. No se reconocen provisiones para pérdidas de explotación futuras.

Se valoran las provisiones al valor presente del importe necesario para liquidar la obligación a la fecha del Balance de situación, según la mejor estimación disponible.

Cuando se espera que parte del desembolso necesario para liquidar la provisión sea reembolsado por un tercero, el reembolso se reconoce como un activo independiente, siempre que sea prácticamente segura su recepción.

Naturgy tiene la obligación de desmantelar determinadas instalaciones al finalizar la vida útil, así como de llevar a cabo la restauración medioambiental del emplazamiento donde éstas se ubican. Para tal fin se registra en el inmovilizado material el valor presente del coste que supondrá realizar dichas tareas que, en el caso de las centrales nucleares, abarcan hasta el momento en el que la entidad pública empresarial ENRESA se hace cargo del desmantelamiento y gestión de los residuos, con contrapartida en provisiones para riesgos. Esta estimación se revisa anualmente de forma que la provisión refleje el valor presente de los costes futuros aumentando o disminuyendo el valor del activo. La variación de la provisión originada por su actualización financiera se registra con cargo al epígrafe de "Gastos financieros".

En aquellos contratos en los que las obligaciones asumidas conllevan unos costes inevitables superiores a los beneficios económicos que se espera percibir de ellos, se reconoce el gasto y la provisión correspondiente por el importe del valor presente de la diferencia existente.

Para cubrir la obligación de entrega de derechos de emisión de CO_2 derivada de las emisiones realizadas durante el ejercicio, se registran en el epígrafe Provisiones corrientes los derechos de CO_2 a entregar valorados al coste de adquisición para derechos comprados registrados en el epígrafe Existencias y, en el caso de no poseer todos los derechos de emisión necesarios, al valor razonable para los derechos pendientes de compra.

Incentivo medioambiental a las centrales de carbón en España

En 2007, las autoridades españolas introdujeron un régimen (incentivo medioambiental) para apoyar la instalación de nuevos filtros de óxido de azufre en las centrales de carbón existentes. En noviembre de 2017 la Comisión Europea abrió una investigación para determinar si dicho incentivo se ajusta a las normas sobre ayudas estatales de la Unión Europea. En el caso de un resultado desfavorable, el riesgo estimado en los estados financieros consolidados, que no computa el periodo en el que las centrales estuvieron sujetas al régimen económico del Real Decreto 134/2010, podría alcanzar 67 millones de euros.

Note 15: Environmental information.

Nota 37. Medioambiente

Actuaciones ambientales

Naturgy es consciente de los impactos ambientales de sus actividades en el entorno, por lo que la compañía presta una especial atención a la protección del medioambiente y al uso eficiente de los recursos naturales para satisfacer la demanda energética.

La gestión responsable del medioambiente es un pilar estratégico para Naturgy y se articula sobre tres ejes estratégicos:

- Clima y aire: contribuir a la mitigación del cambio climático, a la transición energética y a la mejora de la calidad del aire.
- Economía circular: impulsar la ecoeficiencia en el uso de los recursos para reducir impactos ambientales negativos.
- Capital natural y biodiversidad: fomentar la conservación del patrimonio natural y cultural en los entornos de actuación.

En el ejercicio 2018, Naturgy ha llevado a cabo múltiples actuaciones en materia de capital natural y biodiversidad, todas ellas alineadas con la prevención, reducción y compensación de nuestros impactos y la potenciación del valor de los entornos naturales.

Las actuaciones ambientales realizadas en el ejercicio 2018 han alcanzado un total de 494 millones de euros (96 millones de euros en el ejercicio 2017), de los que 396 millones de euros corresponden a inversiones ambientales y 98 millones de euros a gastos incurridos en la gestión ambiental de las instalaciones, excluidos los derivados del mercado de carbono. Dentro de las inversiones realizadas, destacan las correspondientes a los nuevos proyectos de generación renovable (314 millones de euros), fundamentalmente parques eólicos y fotovoltaicos, que contribuirán a reducir las emisiones específicas de CO_2 y otros contaminantes atmosféricos.

Finalmente, y por lo que se refiere a las posibles contingencias, indemnizaciones y otros riesgos de carácter medioambiental en las que pudiera incurrir la compañía, se cuenta con pólizas de seguro de responsabilidad civil para cubrir los eventuales daños.

Emisiones

En 2018 las emisiones totales de CO_2 consolidadas de las centrales de carbón y ciclo combinado de Naturgy afectadas por la normativa que regula el Sistema Europeo de Comercio de Emisiones han sido de 9,1 millones de toneladas de CO_2 (11,2 millones de toneladas de CO_2 en 2017). Este descenso de 2 millones de toneladas se debe a un menor funcionamiento de las centrales de carbón, ya que 2018 ha sido un año con mayor hidraulicidad.

Naturgy desarrolla cada año una estrategia para gestionar el aprovisionamiento de su cartera de cobertura de derechos de emisión de CO_2, adquiriendo los mismos a través de su participación activa tanto en el mercado primario, como en el secundario.

Example of environmental information in the management report

1.3. Desempeño ambiental y social

Medio Ambiente	2018	2017
Factor de emisión de generación (t CO_2/GWh)	342	388
Emisiones de gases de efecto invernadero (GEI) (M tCO_2 eq)[1]	18,3	20,5
Capacidad instalada libre de emisiones (%)	27,5	26,4
Producción neta libre de emisiones (%)	24,9	19,6

Source: Naturgy's consolidated annual accounts, period 2018.

Annex 2. Some examples of environmental information contained in the sustainability report: The case of Iberdrola in 2018.

Consumo de materiales

GRI 301

A continuación se muestra la evolución del consumo de combustibles de fuentes no renovables en los últimos tres años:

301-1

Consumo de materiales básicos	2018	2017	2016
Carbón (t)	736.670	1.205.609	1.746.457
Fuel (t)	44.155	48.376	45.117
Gas natural (Nm^3)	11.657.294.804	12.293.944.087[38]	11.832.458.331
Gasóleo (m^3)	62.081[39]	15.217[38]	29.520
Uranio (kg)	44.625	65.407	56.915
Combustible derivado de residuos (CDR) (t)	2.983	2.666	1.800

Se aprecia el reducido peso del consumo de carbón en 2018, y su disminución en los últimos 3 años consecuencia del cierre de las instalaciones de generación térmica de carbón.

El uso de combustible derivado de residuos (CDR) representa el 0,02 % del total de combustible consumido en el año en centrales térmicas. 301-2

Reducción de emisiones de gases de efecto invernadero

Las iniciativas de reducción de emisiones se realizan a través de una amplia gama de productos y servicios que promueven la eficiencia energética y el ahorro. Como ejemplo de las acciones llevadas a cabo en 2018 se citan las siguientes:

305-5

Áreas	Acciones e iniciativas	CO_2 evitado 2018 (t)
Renovables	Ahorro en energía primaria por producción de energía renovable	16.122.652
Cogeneración	Ahorro por suministro de energía térmica (vapor) en el grupo	559.326
Eficiencia en red	Ahorro por eficiencia en redes de distribución (España, Reino Unido y Brasil)	114.023
Comercial	Ahorro y eficiencia energética por productos y servicios verdes (España, Estados Unidos y Brasil)	2.683.218
Grupo	Uso de videoconferencias (tCO_2 eq)	5.450
Total		**19.484.669**

Se han celebrado 50.923 videoconferencias en el año 2018, que han evitado viajes de los empleados y han supuesto una reducción estimada de 5.450 t de CO_{2eq}.

En total se ha conseguido evitar la emisión de 19.484.669 t CO_2, el equivalente al CO_2 absorbido por 975 millones de árboles en un año[75].

Cumplimiento ambiental

GRI 307

Iberdrola dispone de un Sistema de gestión ambiental global, en el que se aglutinan todas las certificaciones parciales de cada uno de los negocios que conforman el grupo, alcanzando el 80 % de la producción del grupo. Los sistemas de gestión ambiental certificados identifican los requisitos legales de aplicación a las actividades que desarrolla el grupo y establecen una evaluación de su cumplimiento para el aseguramiento del mismo. En el contenido 307-1 a continuación se presenta información sobre procedimientos legales de carácter ambiental abiertos hacia sociedades gestionadas directamente por Iberdrola.

Durante 2018 los incidentes relacionados con el medio ambiente han supuesto las siguientes multas y sanciones monetarias:

307-1

Multas impuestas relacionadas con el medio ambiente (€)	2018	2017	2016
Importe total de las multas impuestas	7.538.539	3.881.246	2.375.559

Del importe total de las multas impuestas en el ejercicio, 6.510.236 euros lo han sido en España, 964.816 euros en Brasil y 63.486 euros en Estados Unidos. En España, el 63 % del importe total corresponde a tres expedientes sancionadores por pérdida de tres ejemplares de especies protegidas de España. En Brasil son debidas al incumplimiento de condicionantes ambientales, afectación de la ictiofauna y podas irregulares.

Source: Sustainability Report, Iberdrola, 2018.

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