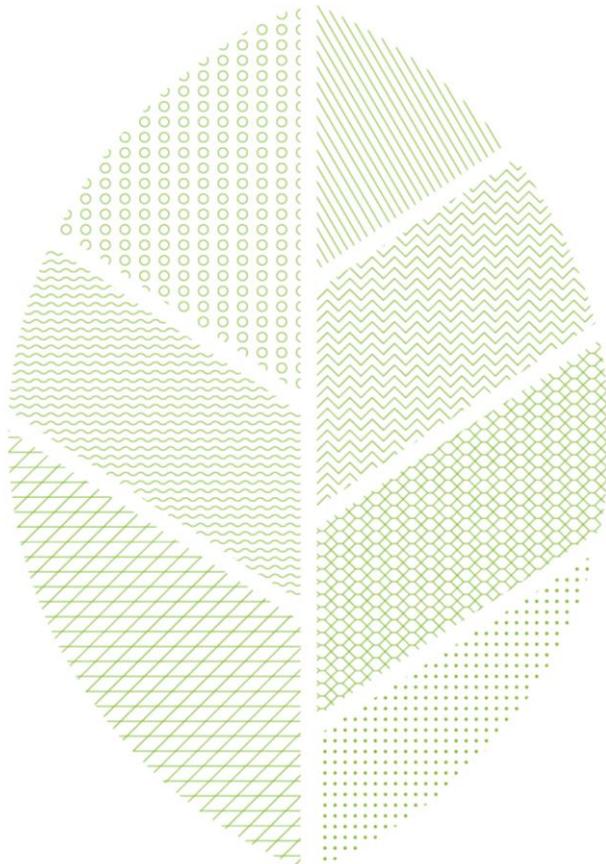




RED
ELÉCTRICA
DE ESPAÑA



EMAS Environmental Statement 2019

June 2020



Table of Contents

1. Who is Red Eléctrica	4
2. Environmental Management and Policy	5
2.1. Environmental Policy.....	5
2.2. Responsible Environmental Management.....	6
2.3. Sustainability Indexes	6
2.4. Environmental Management System.....	7
3. Scope of the EMAS Register	9
4. 2030 Sustainability Commitment. Sustainable Development Goals.....	11
5. Red Eléctrica's Activities and the Environment.....	13
6. Environmental aspects	19
7. Environmental Performance 2019	25
7.1. Climate Change and Energy Efficiency	26
7.1.1. CO ₂ Emission Inventory	28
7.1.2. SF ₆ Emissions	30
7.1.3. Energy efficiency	31
7.1.3.1. Electricity Consumption - Reduction of Electricity Consumption	32
7.1.3.1.1. Specific Energy Measures Implemented in 2019.....	32
7.1.3.2. Sustainable Mobility.....	35
7.1.4. Carbon Footprint in the Supply Chain	36
7.1.5. Offsetting of Emissions.....	36
7.1.6. Transmission Grid Losses.....	37
7.2. Biodiversity – Natural Capital	39
7.2.1. Natural Capital.....	40
7.2.2. Electricity Grids and Biodiversity.....	41
7.2.3. Protection of Birdlife	41
7.2.4. Protection of Habitats and Species	42
7.2.5. Contribution to Biodiversity Conservation	42
7.2.5.1. Noteworthy Projects regarding the Protection of Habitats and Vegetation.....	43
7.2.5.2. Conservation Projects in relation to Focal and Threatened Species.....	44
7.2.5.3. The 'Red Eléctrica Forest'	46
7.2.5.4. Innovation Projects in the Management, Protection and Conservation of biodiversity.....	47
7.2.6. Fire Prevention	48
7.3. Saving of Resources: Water and Paper	52
7.4. Socio-Economic Environment.....	53
7.4.1. Protection of Archaeological and Ethnological Heritage.....	53
7.4.2. Electric and Magnetic Fields (EMFs).....	54
7.4.3. Noise Pollution	55
7.5. Circular Economy.....	56



7.5.1. Waste Management in 2019	57
7.5.2. Zero Waste to Landfill Sites	59
7.5.3. Project for Selling Obsolete Power Transformers	59
7.5.4. Sustainable Management of Soil/Earth affected by Oil and Fuel Spills.....	59
7.6. Prevention of Contamination of Soil and/or Groundwater	61
7.7. Stakeholders	64
7.7.1. Management of enquiries, claims and grievances	65
7.7.2. Supply Chain	66
7.7.3. Internal Training and Awareness.....	68
7.7.4. Stakeholder Relations.....	69
7.7.5. Communication and Dissemination of Environmental Information	71
7.8. Innovation.....	73
8. Environmental Risks	74
9. Objectives. Annual Environmental Plan	81
10. Accidents with Environmental Impacts.....	84
11. Legal Compliance Assessment.....	88
12. Environmental Expenditure.....	90
13. Performance Indicators	92
14. Frequency of the Environmental Impact Statement.....	101
Glossary of terms	102
Statement from the Verification Agency	104
Annex: Environmental Actions 2019	105



1. Who is Red Eléctrica

Red Eléctrica de España S.A. was set up on 29 January 1985 as the first company in the world dedicated exclusively to the transmission of electricity and the operation of the electricity system.

In 2008, in order to strengthen the transparency and separation of regulated activities (electricity transmission and operation of the electricity system in Spain) from the rest of the business activities, a change was made in the Company's corporate structure with the creation of **Red Eléctrica Corporación**, as the parent company of the Red Eléctrica Group.

The main activity of the Group (the electricity business in Spain) is carried out by **Red Eléctrica de España S.A.U.**, which performs the functions of sole transmission agent and operator (TSO) of the Spanish electricity system. Its mission is to guarantee the security and continuity of the electricity supply at all times and to manage the transmission of high-voltage electricity.

As the operator of the electricity system, Red Eléctrica carries out its operational functions through its electricity control centres, in order to guarantee the correct operation of the electricity supply process at all times, both in the peninsular system and in the non-peninsular systems.

In its capacity as manager of the high-voltage transmission grid, Red Eléctrica transports electricity from the generating centres to the consumption areas through its own extensive transmission grid, which it improves, expands and maintains with homogeneous and efficient criteria. It is also responsible for managing the transmission of energy between external systems through international interconnections¹ and for guaranteeing third party access to the grid under equal conditions.

The Company exercises this responsibility with transparency, neutrality, independence and economic efficiency with the goal of providing an electricity service of the highest quality for society as a whole.

We are therefore responsible for the technical management of the Spanish electricity system, owners of the Spanish high voltage electricity transmission grid and the only company in Spain specialising in the activity of electricity transmission².

Our facilities consist of electricity control systems that direct and supervise the operation of the system; 44,372 kilometres of high voltage transmission line circuit and 5,750 substation bays with a transformer capacity of 93,735 MVA.

Evolution of the facilities ³		2017	2018	2019
Lines (km of circuit)	Kilometres of circuit	43,925	44,174	44,372
	400 kV	21,725	21,727	21,736
	220 kV and less	22,200	22,447	22,636
Substations	Number of bays	5,674	5,798	5,966
	400 kV	1,476	1,498	1,535
	220 kV and less	4,198	4,300	4,431
	Transformer capacity (MVA)	89,618	92,400	93,735

¹ In this regard, since 2018, Red Eléctrica owns 50% of the share capital of INELFE, a company jointly set up with its French counterpart, RTE, to develop electricity interconnections with France.

² *Clasificación Nacional de Actividad Económica – CNAE* (National Classification of Economic Activities) 35.12: Electricity transmission.

³ Data corresponding to the last three years - revised and updated in 2020. Source: Sustainability Report 2019.



2. Environmental Management and Policy

2.1. Environmental Policy⁴

The Red Eléctrica Group expresses its commitment to protect the natural environment and undertakes to promote and ensure that each employee in the Group performs their daily work with the utmost respect for the environment. This is achieved through ongoing improvement in the fulfilment of their duties and responsibilities.

The principles of our environmental policy are as follows:

- Apply the principles of excellence adopted by the Company and incorporate and promote best practices in the field of environmental management.
- Ensure compliance with environmental legislation, regulations and laws applicable to the activities they carry out and adopt those voluntary commitments regarding environmental matters which are considered to be of interest.
- Guide the Group towards sustainable development, seeking to maintain the adequate balance between respect for the environment, the promotion of progress, social well-being and economic interests, with the objective of creating value on an ongoing basis.
- Achieve leadership in environmental matters in all the companies of the Red Eléctrica Group within their scope of activity.
- Ensure continuous improvement, the prevention of contamination and the principle of caution, according to the objectives and capacities of the Red Eléctrica Group.
- Promote research, development and the use of new technologies and processes with the objective of preventing or minimising environmental impacts.
- Contribute to a sustainable energy model, with a greater presence of energies generated by clean and efficient technologies regarding electricity consumption.
- Develop and maintain a transmission grid that is not only integrated into the landscape, but also into the socio-economic environment.
- Drive the conservation of biological diversity through active collaboration on those initiatives which help reduce its loss.
- Adopt a clear commitment in the fight against climate change, backing energy efficiency and sustainable mobility as fundamental pillars.
- Develop and provide ongoing actions regarding training, awareness and motivation concerning environmental protection.
- Develop and maintain dialogue channels and means of communication to keep all interested parties informed about environmental related actions whilst promoting collaboration frameworks with stakeholder groups.
- Consider the environmental policies and requirements as one of the criteria in the selection, qualification and assessment of suppliers.

⁴ First Edition (PC01 replacing Edition 4 of Policy PG11) approved by the Management Committee in October 2014.



2.2. Responsible Environmental Management

Red Eléctrica carries out all its activities taking into consideration environmental protection in accordance with the principles set out in its **environmental policy**, among which are included the commitment to the prevention of contamination and the principle of caution. All activities are undertaken from a position of ethical commitment to society, integrating environmental protection into the business management with the aim of creating ongoing value.

The main environmental impacts of Red Eléctrica are those derived from the presence of facilities in the territory, therefore the Company works non-stop to make their facilities compatible with the environment, considering their entire life cycle and paying particular attention to biodiversity conservation.

Furthermore, Red Eléctrica is a key player in the energy transition towards a decarbonised energy model and therefore has undertaken a specific commitment in the fight against climate change.

Red Eléctrica's commitment not only covers its own activities, but this commitment also extends to its supply chain.

2.3. Sustainability Indexes

The firm and focused effort of Red Eléctrica to become a model company that is responsible, efficient and sustainable has been recognised by leading sustainability rating agencies, which has led to the Company being present in some of the key sustainability indexes as a result of their performance in this field, among the indexes of note are:

- **Dow Jones Sustainability Index.**
- **FTSE 4 Good.**
- **Euronext Vigeo Index Eurozone 120 and Euronext Vigeo Europe 120**
- **MSCI (Morgan Stanley Capital International).**
- **Ethibel Sustainability Index Excellence Europe, Ethibel PIONEER and Ethibel EXCELLENCE Investment Registers**

Among the awards and recognitions received by Red Eléctrica in 2018 for its environmental management the following are noteworthy:

- **CDP Leadership Index.** The Company has achieved a rating of A-, maintaining itself in the leadership positions, in recognition for its efforts and actions to combat climate change.
- **Worldwide leadership position** in the Dow Jones Sustainability Index in the Electric Utilities sector. Red Eléctrica has maintained a continued presence, consecutively for the last five years, in the Dow Jones Sustainability World Index.
- **Silver Class in the 'The Sustainability Yearbook 2020'** published by RobecoSAM.
- **'Cinco Días' Award for Business Innovation.** The Most Innovative Business Initiative Award in the category of Corporate Social Responsibility was given to the Red Eléctrica Group for the project 'Red Eléctrica Marine Forest: recovery of Posidonia oceanica seagrass meadows'.
- **Award at the sixth edition of the Delta Birding Festival 2019:** 'Effects of global change on the Iberian populations of Egyptian vultures in Catalonia'.

More information can be found at:

<https://www.ree.es/en/sustainability/commitment-to-sustainability/leadership-in-sustainability>

<https://www.ree.es/en/publications/annual-report-2019>



2.4. Environmental Management System

In order to carry out a continuous improvement of its environmental performance Red Eléctrica has a certified Environmental Management System in accordance with UNE-EN ISO 14.001:2015 standard, certified since May 1999 and which, since October 2001, has been registered under the EU Eco-management and Audit Scheme (EMAS) with registration number N° ES-MD-000313 (previously ES-SB-000013).

This system covers all the activities and facilities of Red Eléctrica de España.

• MANAGEMENT STRUCTURE

The Environmental Management System is part of a Comprehensive Corporate Management System which also encompasses the Quality, Occupational Health and Safety, and Corporate Responsibility management systems. The aforementioned management systems take into consideration all those regulatory aspects which have been defined as being potentially cross-cutting based on the existing processes and resources dedicated to each one of them, with the aim of:

- Gearing the processes to achieving objectives, increasing the satisfaction of clients and stakeholders.
- Increasing the integration and reliability of operations and effectiveness at a personal and organisational level.
- Creating a culture oriented to safety, excellence and efficiency.

Specifically, the Environmental Management System comprises all the activities performed by Red Eléctrica in all its facilities and work centres, with special attention to those that generate an interaction with the environment. It is integrated across the board into the decision-making process and in the Company's activities, promoting a business model that takes into account the social, economic, ethical and environmental dimensions.

• FUNCTIONAL STRUCTURE

Red Eléctrica's commitment to the environment, which stems from the Company's senior management, establishes the environmental policy and implements the means for compliance with environmental requirements, being the **Chairperson** of the Company who holds the maximum responsibility regarding the environment. This commitment not only covers the Company's own activities but also extends to its supply chain.

Additionally, the Company voluntarily created the **Sustainability Committee**, even though there was no legal requirement to do so. This Committee responds to the strategic nature that the Board of Directors wants to grant to sustainability within the Company, contributing significantly to the positioning of Red Eléctrica in this field. Monitoring and promoting Red Eléctrica's actions related to the environment and the fight against climate change are among the objectives of the Sustainability Committee.

At a tactical level, the management area responsible for defining and coordinating the development and monitoring of the Environmental Management System is the **Institutional Relations and Sustainability Area**. The Sustainability Department is part of the Institutional Relations and Sustainability Area and is integrated into the Sustainability and External Relations Division that reports to the Chairperson's Office.

The mission of the **Sustainability Department** is to design, coordinate and control the implementation of the strategies, policies, systems, criteria and actions regarding sustainability of the Red Eléctrica Group and, as part of its responsibilities, to coordinate the development and monitoring of the Environmental Management System.

The maintenance of the Environmental Management System involves all the Company's units, highlighting the key role of the **Environmental Department**, integrated within the Licenses and Environmental Area belonging to the **Transmission Division**, whose function is integrate the environmental variable in all phases of the life cycle of the facilities, ensuring compliance with the environmental conditioning factors required by the competent bodies in environmental matters and by internal and external regulations.



In addition, the involvement of all organisational units and the commitment of all those who work in the Company is fundamental for the implementation of an appropriate environmental management. The functional guideline manual includes, as a cross-cutting responsibility that is strategic in nature for all the units, that of undertaking all activities while ensuring the fulfilment of the objectives established in the various environmental management plans, in order to ensure the fulfilment of the Company's commitment to protect and respect the natural environment.

Both the Sustainability Department and the Environmental Department is comprised of a diverse range of professionals and experts in environmental matters and part of their mission is to actively support the territories in which the facilities are located. Red Eléctrica's facilities that are in the project definition, construction or maintenance phase are environmentally controlled on site by personnel from each specific regional area.

• DOCUMENTATION STRUCTURE

The Environmental Management System is based a set of applicable regulations.

The management processes include the drafting, custody, maintenance and registering of the documented information necessary for the Environmental Management System. The associated documentation is updated and easily accessible in different formats/media for all personnel.

The regulations of the Environmental Management System are composed of the following documents:

- **POLICIES:** set out general guidelines developed with the aim of achieving the business vision and strategies.
- **ACTION GUIDES:** documents that establish and provide criteria or guidelines or information to facilitate the carrying out of activities from an environmental point of view. The action guides include those documents that set out the strategic guidelines contained in the corporate policies.
- **GENERAL PROCEDURES:** regulations that govern processes of a general or corporate nature.
- **TECHNICAL PROCEDURES:** regulate those processes of a technical nature in which a limited number of organisational units take part.
- **TECHNICAL INSTRUCTIONS:** describe in detail some or all of the activities of a process.
- **TECHNICAL SPECIFICATIONS:** describe in detail the terms and conditions as well as the technical specifications required for the acquisition of goods and services that are made on a regular basis from external suppliers of the Company.
- **MANUALS:** documents that govern general areas of action as well as those of mandatory compliance and respect regarding the subsequent evolution of any standard/regulation that may affect the Organisation.
- **CIRCULARS:** notifications from the Company's management, to all or part of the Organisation. The purpose of these documents, that are updated and issued on a periodic basis, is to help clarify certain aspects related to any existing regulation or to establish rules regarding any form of activity that is not currently subject to legislation.

• Changes in the documentation of the environmental management system 2019

During 2019 many of the environmental management system documents were modified in order to keep them updated on an ongoing basis and introduce improvements in the management thereof. The changes are indicated in the table below.

Code	Title	Edition	Published on	Approval date	Cancels
IC001	Corporate monitoring of suppliers	4	03.06.19	09.07.19	Edition 3
IM032	Evacuation of Red Eléctrica buildings and facilities	4	17.06.19	23.07.19	Edition 3

No documentation regarding the environmental management system has been cancelled or annulled.



3. Scope of the EMAS Register

Red Eléctrica de España, S.A.U has an environmental management system that complies with the requirements of Regulation (EC) No. 1221/2009 ('EMAS III'), amended pursuant to Regulation EU 2017/1505, N° ES-MD-000313 whose scope covers the entirety of the Company's activities:

- The engineering, construction and maintenance of high voltage lines and electricity substations, and of telecommunication systems
- The operation of electricity systems
- The physical security of facilities
- Technological research, development and innovation projects
- The consulting and professional services in the activities described above within the national and international scope
- The provision of stakeholder attention and claims management services for all Red Eléctrica stakeholders via the corporate stakeholder attention centre ('Dígame' service)

and that are performed at:

- **Moraleja Head Office and Central Regional Office:** Paseo Conde de los Gaitanes, 177. 28109 - Alcobendas (Madrid)
- **Albatros Head Office:** C/Anabel Segura 11, 28109 - Alcobendas (Madrid).
- **CECORE:** Parque Tecnológico de Madrid, C/Isaac Newton, 13, 28760 –Tres Cantos (Madrid).
- **CAMPUS Tres Cantos:** Parque Tecnológico de Madrid, C/Isaac Newton, 2, 28760 Tres Cantos (Madrid).
- **Regional Office and System Operation Department of the Balearic Islands:** Camino Son Fangos, 100 Edificio A - 2ª planta. 07007 – Palma de Mallorca (Balearic Islands)
- **Regional Office and System Operation Department of the Canary Islands (Main Office in Las Palmas de Gran Canaria)** Calle Juan de Quesada, 9. 35001 – Las Palmas de Gran Canaria (Las Palmas)
- **Regional Office and System Operation Department of the Canary Islands (Main Office in Tenerife):** Nuestra Señora de la Ternura (Los Majuelos). 38108 – San Cristobal de la Laguna (Santa Cruz de Tenerife)
- **Northern Regional Office:** C/Ibañe de Bilbao, 28- 7ªA. 48009-Bilbao (Vizcaya).
- **North-Eastern Regional Office:** Avenida Paralelo, 55. Edificio REE. 08004-Barcelona (Barcelona).
- **North-Western Regional Office:** C/Gambrinus, 7-2º Izq. 15008- La Coruña (A Coruña)
- **Southern Regional Offices:** C/Inca Garcilaso, 1 Edificio REE. 41092 – Isla de la Cartuja (Seville)
- **Eastern Regional Offices:** Avenida de Aragón, 30 Planta 14. 46021 – Valencia
- **Eastern Regional Transmission Office:** C/Puebla Larga, 18, 46183 – La Eliana- (Valencia)
- **North-western Regional Transmission Centre:** Carretera N-601, Madrid-Valladolid-León, KM 218. 47630 - La Mudarra (Valladolid)
- **Northern Regional Transmission Centre:** Carretera Zaragoza-Sariñera, Km 9,2. 50162 - Villamayor (Zaragoza).
- **North-Eastern Regional Transmission Centre:** Carretera antigua Castellbisbal-Rubí, S/N Polígono Industrial Can Pi de Vilaroc. 08191 - Rubí (Barcelona).
- **Central Regional Transmission Centre:** Carretera N-I Madrid-Burgos, KM 20,7. 28700 – San Sebastián de los Reyes (Madrid).
- **Southern Regional Transmission Centre:** Carretera Sevilla-Utrera, KM 17. 41500 – Alcalá de Guadaíra (Seville).
- **Balearic Islands Regional Transmission Centre:** (Polígono industrial Marratxi) C/ Gerrers esquina Siurells, 2ª Planta. Marratxi (Palma de Majorca).
- **Canary Islands Regional Transmission Centre:** (Polígono industrial MAYORAZGO) C/ Laura Grötte de la Puerta, 5. Polígono industrial Mayorazgo- (Santa Cruz de Tenerife).



The following infrastructure or line sections are excluded from the scope of the EMAS register specifically in those areas where they are located, or through which they cross (municipalities indicated):

Facility	Municipality
400 kV Azpeitia-Gatica line	Mungia (Vizcaya)
400 kV Morata-Moraleja line and the Morata-Villaviciosa line	Valdemoro (Madrid)
220 kV Begues-Castellet line and the Castellet-Viladecans line	Olérdona (Barcelona)



4. 2030 Sustainability Commitment. Sustainable Development Goals

The 2030 Sustainability Commitment of the Red Eléctrica Group, approved by the Board of Directors in 2017, materialises the commitment made by the Company to its long-term continuity and success through a business model capable of creating shared value for all its stakeholders through the responsible execution of its activities.

This Commitment has been defined with a long-term vision for the 2030 horizon in order to be aligned with the time period defined for global objectives such as the Sustainable Development Goals (SDGs) of the United Nations, and within the 2030 Climate and Energy Framework of the European Commission. It is based on ten principles defined in the Corporate Responsibility Policy and revolves around four priorities: *Anticipation and action for change, Decarbonisation of the economy, Responsible value chain and Contribution to the development of the social, economic and natural environment.*

This Commitment has been promoted by defining eleven sustainability goals for the 2030 horizon (<https://www.ree.es/en/sustainability/commitment-to-sustainability/sustainability-objectives-2030>).

These goals contribute directly to the achievement of the United Nations' Sustainable Development Goals (SDGs).

The most relevant 2030 Sustainability Goals for environmental management are the following:

- **Reduce our GHG emissions by more than 40% per MWh transported.**
- **Generate a positive net impact on the natural capital in the vicinity of our facilities.**
- **Be a leading company in circular economy.**

Aware that the role of companies is key to achieving the SDGs, the Red Eléctrica Group, based on the nature of its activity and the countries in which it operates, has carried out a process to identify priority SDGs. As a result of this process, the most relevant SDGs have been classified into two levels of relevance for Red Eléctrica:

Identification and Prioritisation of SDGs for the Red Eléctrica Group						
SDGs High Relevance						
SDGs Medium Relevance						

During 2019, in order to advance in the 2030 Sustainability Commitment, an update of the materiality study was carried out in order to identify the Company's relevant material issues.

The update of the materiality study carried out has identified 16 material issues for the Red Eléctrica Group and its stakeholders. The materiality study was conducted in accordance with an internationally recognised methodology for the analysis of materiality and endorsed by organisations of world reference such as the Global Reporting Initiative (GRI).



Among the material issues identified, those with a more significant environmental component and also prioritised by a greater criticality for the achievement of the Company's long-term objectives were the following:

- **Climate Emergency (*Climate Change*)**
- **Biodiversity and Natural Capital**
- **Circular Economy**

The aforementioned material issues constitute two of the three vectors that articulate the Annual Environmental Plan of the Red Eléctrica Group. The 'Circular Economy' issue is included as a relevant area of action in the Environmental Management vector of facilities (*Landscape integration of the facilities into the environment and the prevention of pollution*) together with other areas of action.

In any case, and although it has not been determined in the analysis process as a material issue, **the landscape integration of the facilities into the environment and the prevention of pollution** is one of the main vectors of progress for Red Eléctrica in environmental management.

The three vectors are interrelated.



5. Red Eléctrica's Activities and the Environment

Red Eléctrica's facilities are located nationwide due to the fact that the aim of the electricity transmission grid is to link the points of energy generation to the electricity distribution points, so it can be provided to the final consumer. The presence of electricity infrastructure, in no case, represents a significant alteration in the way of life of the communities affected.

The interaction of the electricity facilities with the environment is mainly linked to their presence in the territory and to the works associated with their construction and maintenance. Therefore, it can be understood that the main environmental impacts are associated with the territory and landscape where the substations are located, and which are crossed by electricity lines.

The main measure to reduce and even avoid the undesired effects of Red Eléctrica's facilities on the environment and in local communities is the selection of the site where facilities will be located. This includes carrying out a viability analysis of the facilities before their incorporation into the electricity planning proposal that Red Eléctrica de España, as System Operator, submits to the Ministry of Ecological Transition and the Demographic Challenge. During 2019, Red Eléctrica worked on the feasibility analysis of the infrastructures proposed for the next Electricity Planning for 2021-2026, which is binding in nature, having evaluated the different alternatives and studied the complexity of their implementation within the territory.

Once the Electricity Planning is approved, the Company conducts a detailed study of the territory, and works in coordination with the public administrations and key stakeholders to define the siting (location) of substations and the routes the electricity lines will follow, as their adequate siting is a determining factor in order to reduce and even avoid undesired impacts on the environment and on the local communities. In addition, in order to minimise the potential impact of the infrastructure, it is necessary to establish the appropriate preventive and corrective measures to be applied during the construction or maintenance of facilities.

The best tool that makes it possible to define the most appropriate project and establish the suitable preventive and corrective measures is the **Environmental Impact Assessment** procedure; a procedure which the majority of the Company's projects are legally required to carry out.

To ensure the implementation, continuity and effectiveness of the established measures, **environmental monitoring programmes** are defined and executed. These are applied in the construction of the facilities and in the first years of their operation, and they facilitate the definition of new measures that may be deemed necessary.

For the facilities in operation, the Company conducts periodic reviews in order to verify compliance with environmental standards and identify the necessary actions.

It should be noted that, during 2018 and 2019, the '**Maintenance management and territorial observatory project**', which consisted of compiling and integrating into the Corporate Mapping System all the environmental conditioning factors that must be taken into account when requesting authorisation and carrying out maintenance works on facilities (more than 65 conditioning factors within 200m on each side of every line), in order to ensure that all of conditioning factors are analysed before carrying out any activity and are accessible to all Company staff thereby facilitating their analyses and application.

Among the preventive and corrective measures applied noteworthy are those aimed at the protection of habitats and species (biodiversity protection measures), and those aimed at reducing potential impacts on the socioeconomic environment. Currently one of the most relevant issues in relation to the integration of facilities into the environment is to improve their acceptance by society. Carrying out public consultation and participation processes represents a key tool to accomplish this goal. On the other hand, more than 15 specific environmental actions have been carried out in 2019, among which noteworthy were the technical and informative seminars, which contribute to strengthening relations with the various public administrations.

The diagram on the following page schematically illustrates the main environmental criteria applied in the main transmission grid development phases:



Development and implementation phases for transmission grid infrastructure

 <p>Infrastructure proposal [Drawn up by REE]</p>	 <p>Transmission grid planning [Drawn up by MITECO]</p>	 <p>Project design [New facilities and modifications]</p>	 <p>Construction or modifications of facilities</p>	 <p>Maintenance</p>
<p>Environmental Feasibility Study</p> <ul style="list-style-type: none"> · Analysis of all proposals from an environmental point of view. · Only includes environmentally feasible projects. 	<p>Strategic environmental assessment of plans and programmes.</p> <p>Public participation of stakeholder groups (SGs) through the submission of comments or arguments.</p>	<p>Prior dialogue with stakeholders before defining the project (Autonomous Communities, local councils and NGOs).</p> <p>Environmental Impact Assessment.</p> <ol style="list-style-type: none"> 1 Prior consultation with SGs. 2 Defining the alternative of least impact. 3 Public information. Submission of arguments by SGs. 4 Proposal for preventive and corrective measures. 5 Publication of results. Environmental authorisation. 	<p>Implementation of preventive and corrective measures.</p> <p>Environmental monitoring (monitoring of preventive and corrective measures).</p> <p>Monitoring the work of contractors regarding compliance with environmental requirements.</p> <p>Environmental certification of works taking into account compliance with environmental requirements.</p>	<p>Environmental monitoring programmes in the initial years of operation of a facility.</p> <p>Periodic inspections of facilities to verify compliance with standards and identify improvement measures.</p> <p>Application of environmental improvement measures.</p>



Taking the previously shown diagram regarding the environmental criteria applied as a reference, the following are relevant events that occurred during 2019:

1. Transmission Grid Planning

The current infrastructure planning (Energy Planning, 2015-2020 Electricity Transmission Grid Planning), approved by the Council of Ministers in October 2015, covers a period of six years and is binding in nature for Red Eléctrica. This planning includes the projects for new transmission grid infrastructure that is necessary to guarantee the electricity supply nationwide.

The planned infrastructure is essential for the integration of new renewable energy, the commissioning of electricity lines for the high-speed train, the improvement of the efficiency of the electricity system and maximising the use of the existing renewable energy capacity (thanks to grid meshing and international interconnections) and the electrification of the Spanish energy system, which facilitates the increased use of renewable energy.

All the proposals included in the Planning have been analysed from the point of view of physical, technological and environmental viability.

The Planning undergoes a Strategic Environmental Assessment process regarding plans and programmes by the competent environmental authority. Furthermore, and as a result of the obligations derived from the Environmental Report, Red Eléctrica collaborates with the Ministry of Ecological Transition and Demographic Challenge (MITECO) in the drafting of the annual reports of environmental monitoring; these basically consist of the calculation of a series of performance indicators defined in said environmental report.

In 2019, a new Planning period 2021-2026 was started (Order TEC/212/2019) in which we collaborated on the environmental part with MITECO, as was done in the previous periods with the Energy section of the Ministry of Industry, participating in the preparation of the Strategic Environmental Study.

2. Definition of projects

Environmental permitting processes were initiated for **16 investment projects**:

	Permitting process initiated		
	2017	2018	2019
Initial document	0	1	1
Environmental Document	5	4	5
Environmental Impact Study	2	13	10
Total initiated	7	18	16



The evolution of the conclusion of the environmental permitting process of projects for new facilities in the last three years is as follows:

	Permitting processes completed		
	2017	2018	2019
Positive Environmental Impact Statement	3	3	3
Negative Environmental Impact Statement	0	0	0
Environmental Resolution	5	6	2
Total	8	9	5

Environmental authorisation was obtained for **5** projects, all of which received a positive environmental impact statement.

Positive Environmental Impact Statement ⁵
220kV 'Escalona-T de Foradada' and 'Escalona-T de Escalona' line
400/220kV San Fernando substation; and the incoming and outgoing feeder lines
400 kV La Cartuja substation and the 400 kV Arcos de la Frontera-Cartuja line

Environmental Impact Statement/ Environmental Resolution ⁶
220kV Atios-Montouto line
220kV Puente Bibey substation incoming and outgoing feeder lines - 220 kV Conso-Trives line

At the end of 2019, **125** projects are at different stages of the environmental permitting process.

In the environmental subsection of the sustainability area of the corporate website you will find the section 'Environmental permitting process' where the procedure of environmental processing of projects is described and the documents related to the projects that are being processed are published: <https://www.ree.es/en/sustainability/the-natural-environment/status-of-the-environmental-permitting-process-of-projects>

⁵ Authorisation resulting from the Ordinary Environmental Impact Assessment process (Environmental Impact Study)

⁶ Authorisation resulting from the Simplified Environmental Impact Assessment process (Environmental Document)



3. Construction or modification of facilities

Red Eléctrica performs environmental monitoring on the construction of new electricity lines and substations as well as renovations, upgrading and enlargements of those facilities already in service. This monitoring consists mainly of verifying that the preventive and corrective measures defined in the project are implemented, verifying their effectiveness and defining new measures, if deemed necessary, based on the results obtained.

Additionally, there is a continued increase in the dedication of resources to the tasks prior to the commencement of works (e.g. inventories of trees felled) and the subsequent tasks included in the Environmental Monitoring Programmes to be carried out during the start of the operating phase of the facility, primarily due to the increased requirements included in the environmental authorisations.

The following infrastructure was brought into service in 2019: **29** substations and 281.7 km of line.

The following infrastructure under construction during 2019; **64** substations and 887.7 km of line.

With the aim of ensuring the suitable fulfilment of the environmental requirements and verifying the effectiveness of the implemented preventive and corrective measures, environmental monitoring was carried out throughout the year on the entirety of new infrastructure underway, in other words, 100% of the construction works in substations and 100% of the works on lines (this percentage also considers modification works of existing lines).

The permanent⁷, environmental supervision, aimed at intensifying the control and monitoring, covered **93%** of total works performed.

Environmental supervision of work		2017	2018	2019
Substations	% Permanent environmental monitoring	93.2	97.1	92.5
Lines	% Permanent environmental monitoring	81.8	93.4	94.4

The most notable preventive, corrective and compensatory measures carried out in this phase during 2019 can be consulted in the Annex: Environmental Actions 2019, shown at the end of this document.

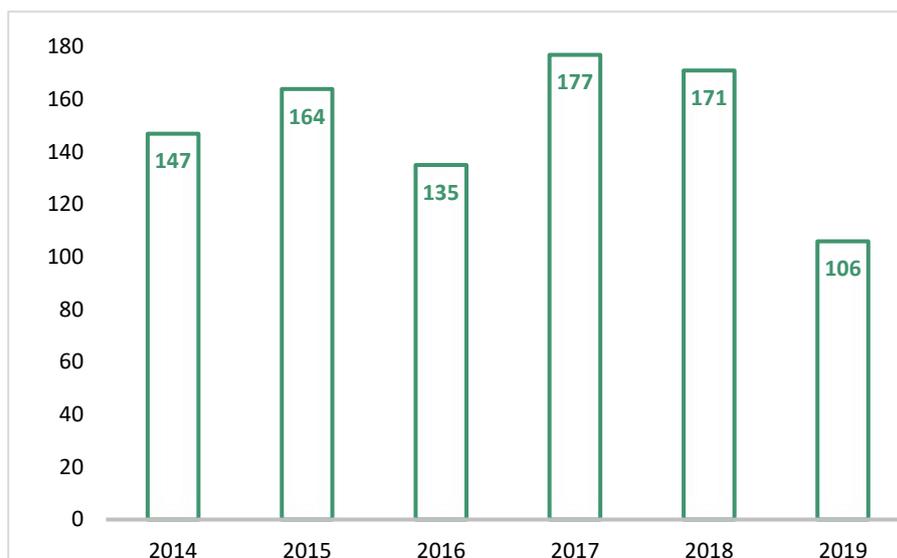
⁷ Supervision carried out to a higher degree than that set as a minimum in Environmental Instruction IA015.



4. Maintenance of facilities

In 2019, during the maintenance phase, a total of 106 environmental inspections were carried out in substations. This total represents 15.4% of all the substations in operation in 2019. It has been established that every 3 years it is necessary to carry out an environmental inspection in those substations that have power transformers and at least one inspection must have carried out in each of the substations within a maximum period of 6 years.

Number of environmental inspections in substations.



The results of these supervisions allow environmental improvement actions to be identified and considered in the planning of actions in both the renovation and improvement plans as well as in the maintenance programmes.

In addition, the environmental risk of the work to be carried out during the year is analysed and the environmental supervision of the subsequent works related to the maintenance of the facilities is carried out:

- Modification and adaptation work regarding power regulating equipment (power transformers, reactors, phase shifters, auxiliary transformer units with more than 1,000 litres of oil).
 - Transfer, emptying and filtering of oil
 - Replacement of power terminal blocks
 - Repair of faults or repairs involving the transfer or movement of oil
 - Transportation / transfer
 - Decommissioning
- Construction, adaptation and/or remodelling of oil tanks and collection pits.
- Remodelling or comprehensive remodelling of buildings in which earthworks/civil works are carried out.
- Characterisation and/or cleaning of soils (excluding incidents).
- Silvicultural operations on the strips of land around the perimeter of substations.
- Work in which asbestos waste may be generated.
- Work where SF₆ gas is handled by an external company in gas insulated substations.
- Work associated with the repair of damages caused by accidents that have environmental consequences (excluding incidents).



During 2019, a total of **79** environmental supervisions of maintenance work were carried out, consolidating the implementation of environmental supervision in activities that have a significant environmental impact.

6. Environmental aspects

During all the activities carried out in the development and implementation phases regarding transmission grid infrastructure (fundamentally: the definition of the project, construction/modification and maintenance of facilities), Red Eléctrica identifies and evaluates the direct and indirect environmental aspects that can interact with the natural environment, producing some type of negative impact, not just under normal operating conditions but also under abnormal conditions and as a result of emergency situations.

For the identification, assessment and recording of environmental aspects, it is necessary to indicate that in the system differences exist between the various phases:

- Definition of projects (new facilities and modifications): the effects or impacts and by extension, the aspects associated to the same, for each one of the new infrastructure projects, are identified in the corresponding environmental impact study and the appropriate environmental impact statement or resolution, which also include the preventive and corrective measures which shall be adopted in the construction phase of each facility.
- Construction or modification of facilities: for each construction project for new lines, new substations or enlargements with environmental relevance, the associated environmental aspects of the same are identified and evaluated. The results of the evaluation are incorporated into the Environmental Monitoring Programme (EMP), and/or the environmental specifications of each project, a procedure that ensures they are properly monitored and that they are in compliance with the preventive and corrective measures defined in the design of the projects.

The environmental criteria established for the assessment of aspects, under both normal and abnormal operating conditions, are: magnitude and intensity.

- Maintenance of facilities: the environmental aspects detected during the maintenance activity are identified and evaluated periodically, under both normal and abnormal operating conditions and at different levels, depending on the status of the environmental aspect related to a higher degree of assessment (maintenance phase), or at lower degrees (regional work centre and/or logistics centre/building). The evaluation of environmental aspects is performed annually, after year end.

For the evaluation of maintenance aspects, the following general environmental criteria have been established:

- Under normal operating conditions: magnitude, nature/sensitivity and prevention.
- Under accidental conditions: probability of occurrence and potential impact.

Environmental aspects considered in the definition of projects for new facilities

The environmental aspects for each of the projects for new facilities are identified in the corresponding environmental impact study and the appropriate environmental impact statement or resolution, which also sets out the preventive and corrective measures that shall be taken in the construction phase of each facility.



Environmental aspects in the construction of facilities

The construction activities for new lines and substations that are susceptible to generating environmental aspects are:

Activities that generate environmental aspects
Storage and transfer of oils and fuels
Storage and management of waste
Work sites (substations)
Land compacting
Clearing, pruning and felling
Excavation and landfill works
Concreting and cleaning of containers used
Hanging/stringing of conductors and grounding cables (lines)
Equipment assembly (substations)
Use of machinery

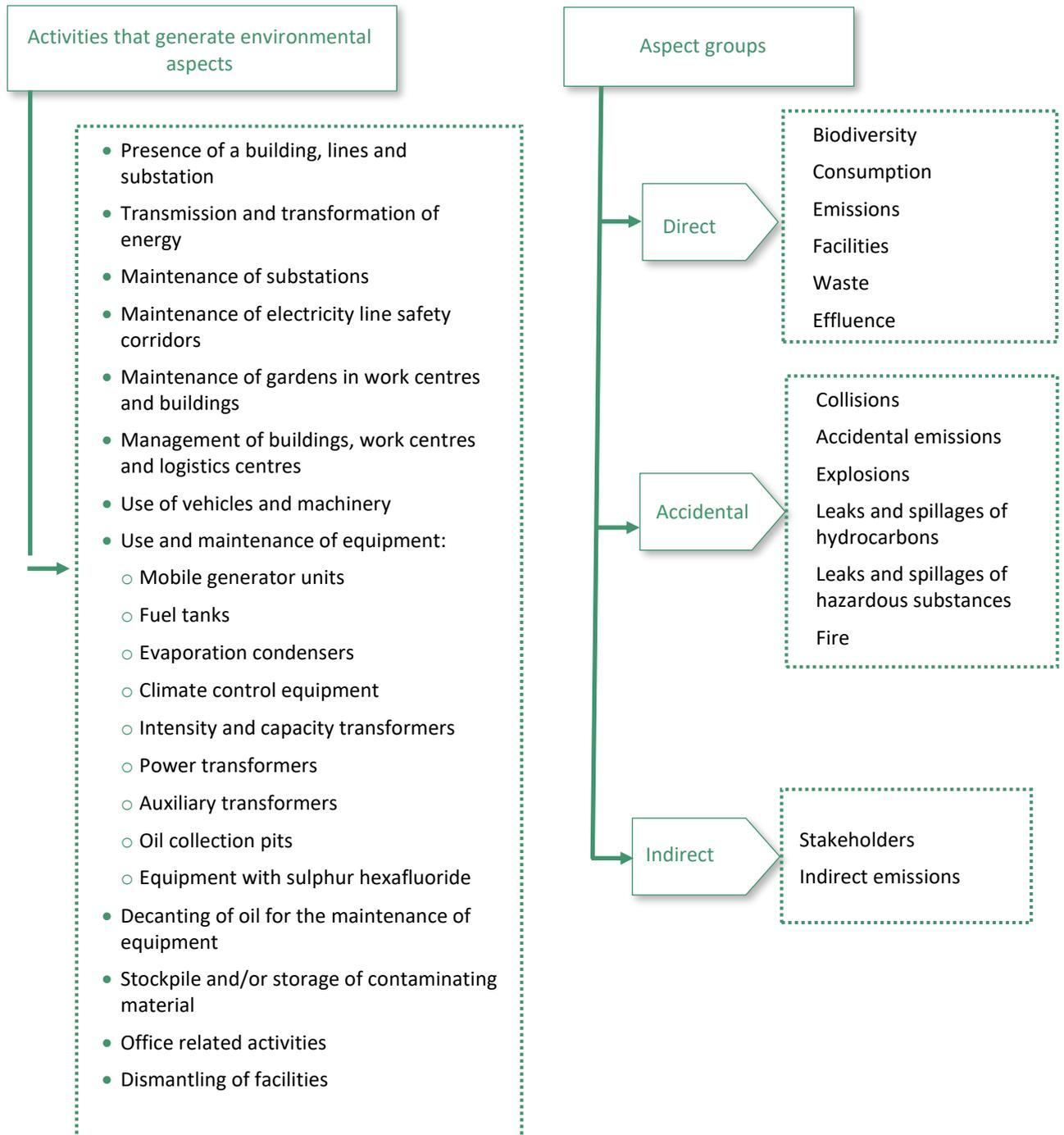
Although the environmental aspects associated to each of the works are specifically evaluated, those that generally have a significant impact on the construction of new lines and substations are detailed in the following table:

Significant environmental aspects in the construction of lines and substations	Environmental aspect susceptible to impact	Impact
Affecting fauna	Biological	Altering population behaviour
Affecting flora	Biological	Elimination of flora/vegetation
Affecting land/soil	Physical	Possible modification of physical characteristics of ground, erosion etc.
Affecting historical and cultural heritage	Socio-economic	Potential landscaping impact, affecting archaeological sites, crops, etc.
Risk of fire	Physical/Biological/Socio-economic	Potential degradation
Risk of oil and fuel spill during use of machinery	Physical	Potential contamination of ground and water sources
Risk of oil and fuel spill during storage and transfer of oils and fuels	Physical	Potential contamination of ground and water sources
Risk of oil spill during assembly of equipment	Physical	Potential contamination of ground and water sources
Risk of affecting water during land movements	Physical	Potential contamination of ground and water sources
Risk of affecting birdlife	Biological	Potential collisions
Non-hazardous waste	Physical	Potential impact due to inadequate storage
Hazardous waste	Physical	Potential contamination of grounds and water sources due to storage and management



Environmental aspects in maintenance activities

The activities carried out in facilities in service (*substations, lines, work centres and corporate buildings*) that can generate an environmental aspect are the following:





The evaluation of aspects is conducted annually. Those aspects shown in the following table were identified as relevant in the 2019 assessment:

Aspect	Relevant evaluation	Environmental aspect susceptible to impact	Impact	Observations ⁸
Biodiversity				
Clearing, pruning and felling	All Regional Areas	Biological	Potential impact on species	40% or more of the actions are carried out in protected areas, forested areas or areas of high fire risk. The most restrictive criteria have been used for the evaluation, due to the lack of detailed information.
Removal of nests	Central and North-Eastern Regional Areas	Biological	Potential impact on species	In the North-Eastern Regional Area, 23 nests were removed in areas where there were no nesting deterrents.
Consumption				
Water consumption	North-Eastern Regional Area, North-Eastern Regional Office, Tres Cantos CECORE (old building)	Physical	Reduction of natural resources	Consumption was more significant in 2019 as it increased by 5% or more compared to last year's average value. Reduction measures implemented or those in place are not considered sufficient.
Electricity consumption	Canary Islands Regional Area and the Levante Regional Office	Physical	Reduction of natural resources	
Non-hazardous waste				
Solid urban waste	North-Eastern Regional Office	Physical	Potential soil and water contamination from its storage and management	Waste for elimination

⁸ Some aspects appear repeatedly as they are 'key' environmental aspects for the organisation over which the Company exercises significant management and control, such as clearing, felling and pruning works, and the monitoring and prevention of birds colliding with the electricity lines.

With regard to evaluations carried out in previous years, it should be noted that for the evaluation of aspects for 2019, changes have been made in the criteria for evaluating waste, mainly in the concept of prevention. Following the modification made to this concept, the maximum value is applied in the evaluation of the concept of prevention if on at least one occasion the waste in question has had as its final destination as elimination. This decision is aligned with the 0-waste model (0% waste to landfill) that the Company has adopted in its commitment to the circular economy. This has meant the appearance of a greater number of types of hazardous wastes evaluated as significant and allows efforts to be directed in coherence with the Company's policy of 0% waste to landfill in 2030. Both the effect that transmission grid facilities have on birdlife, and the contamination of soil and/or underground water, surface water or marine water due to leaks or spills of oils, fuels and hazardous substances, are identified and managed as relevant risks at a corporate level. With regard to clearing, felling and pruning works (formerly included in the risk '*Potential impact on plant species due to the transmission grid*') is also identified and integrated within the corporate risk of '*Fires due to lines and in substations*'.



Hazardous waste				
Soil contaminated with hydrocarbons	Balearic Islands, Central, North-Eastern, North-Western, Northern and Southern Regional Areas	Physical	Potential soil and water contamination from its storage and management	The amount of hazardous waste generated by those facilities in each Regional area that, on average, exceeded 5,000 kg/year, together with those facilities that on average generated between 500-5,000 kg/year, has been significant in 2019. The final destination of this waste is managed through controlled elimination.
Gases in pressurised containers containing hazardous substances (SF ₆ bottles, aerosols, etc.)	Northern and the Balearic Islands Regional Areas	Physical	Potential soil and water contamination from its storage and management	Waste for elimination
Equipment contaminated with PCB-free oil	Central Regional Office	Physical	Potential soil and water contamination from its storage and management	More than 5,000 kg/year on average for the generating centres Waste for elimination
Laboratory chemicals consisting of or containing hazardous substances	North-Eastern and the Balearic Islands Regional Areas	Physical	Potential soil and water contamination from its storage and management	Waste for elimination
Paint residues with hazardous substances	North-Eastern Regional Area	Physical	Potential soil and water contamination from its storage and management	Waste for elimination
Materials impregnated with hazardous substances (absorbent / filtering materials, rags, clothes)	Southern and Central Regional Areas	Physical	Potential soil and water contamination from its storage and management	Waste for elimination
Oil/water mix	North-Eastern and the Balearic Islands Regional Areas	Physical	Potential soil and water contamination from its storage and management	Waste for elimination
Material with asbestos	North-Western, Central and the Balearic Islands Regional Areas	Physical	Potential soil and water contamination from its storage and management	Waste for elimination



Accidental aspects				
Birdlife collisions	Canary Islands, Central, North-Western and Northern Regional Areas	Biological	Potential impact on species	Derived from collisions with unmarked electricity lines or with ineffective marking
Oil leaks or spills from power transformers	Northern Regional Area	Physical	Potential contamination of soil and water	Accidents occurred in the Magallón and Muruarte substations.
Explosions of transformers and equipment (fire + spill)	Central Regional Area	Physical	Potential contamination of soil and water	Explosion and fire of equipment with oil in the San Sebastián de los Reyes substation
Leak or spill in the underground stretch of the cable	Southern Regional Area	Physical	Potential contamination of soil and water	Oil leak in the submarine section of the 400 kV Tarifa-Fardioua interconnection line.
Fuel tank leaks or spills from mobile generator units	Canary Islands Regional Area	Physical	Potential soil and water contamination	In 2019, the Canary Islands' Regional Office had six mobile generator units with their respective diesel tanks located on surfaces equipped with soil protection material. These units cannot be removed and are operating 24/7 to supply auxiliary services.



7. Environmental Performance 2019

The correct operation of the transmission grid facilities requires permanent ongoing maintenance, an appropriate renovation as well as the relevant repairs in the case of failure, and these activities must be compatible with the environment in which the facilities are located. It is therefore necessary to be aware of both the existing natural values as well as those elements of the activity that could impede the Company from being able to act in the most respectful way possible.

Similarly, in its role as transmission agent and electricity system operator, the Company participates actively in the energy transition working towards an emission-free model, contributing to reaching the European 20-20-20 targets (2020 Horizon) and the 40-32-32.5 targets (2030 Horizon), through the integration of renewable energies (developing the transmission grid necessary for their evacuation, and facilitating their integration into the system), and the activities to increase the energy efficiency of the electricity system.

In addition, Red Eléctrica has voluntarily undertaken to work on reducing its own emissions of greenhouse gases.

The way in which Red Eléctrica carried out its activities regarding the environment in 2019 is included within the set of strategies that allow the environmental variable to be integrated throughout the entire life-cycle of the transmission grid facilities, and therefore of all the works performed by the Company. These strategies also encompass both raising the awareness of stakeholders and encouraging their participation.

Throughout this section, Red Eléctrica's environmental performance and behaviour during 2019 regarding the Company's overall activities is set out as per each of the following environmental aspects:

- Climate Change and Energy Efficiency
- Biodiversity – Natural Capital
- Saving of Resources: Water and Paper
- Socio-economic environment
- Circular Economy and Waste Management
- Ground/Soil
- Stakeholder Groups
- Innovation



7.1. Climate Change and Energy Efficiency

Red Eléctrica, as the transmission agent and operator of the Spanish electricity system, is a key player in the change of the energy model and whose elements must be the electrification of the economy, the maximum integration of renewables in the energy mix and efficiency, while always guaranteeing security of supply.

Aware of its important role and the need for companies to have a firm and clear stance on climate change, since 2011 the Company has showcased a voluntary commitment in the fight against climate change, which is materialised through a Climate Change Action Plan (2015-2020-2030).

Even though it is not subject to regulations that apply to it in this regard, the Company has decided to adopt a firm commitment to reduce the emissions associated with the execution of its activities. The Company has committed to an overall emissions reduction target, approved by the Science Based Targets initiative (SBTi), and to various partial targets for reducing emissions or energy consumption.

The main areas of action to achieve the targets are:

- Reduction of SF₆ emissions.
- Reduction of electricity consumption (efficiency measures) and associated emissions (energy supply - 100% renewable).
- Sustainable mobility plan.
- Extending Red Eléctrica's commitments throughout its supply chain.
- Advancing in the inclusion of efficiency criteria and savings in the use of materials in the design of facilities.
- Offsetting of emissions, mainly due to the 'Red Eléctrica Forest' initiative.

The approved targets are in line with the objective of not surpassing a temperature increase of 2°C at the end of the century.

In 2019, the Company has joined the Business Ambition for 1.5°C initiative, promoted by the United Nations and the UN Global Compact (and its local networks), by which it undertakes to work to define a new objective with a more ambitious target.

Red Eléctrica undertakes to reduce its Scope 1 and 2 emissions by 40% per MWh transported by 2030 compared to 2015 figures. This relative target translates into a commitment to reduce absolute Scope 1 and 2 emissions by 30% for the year 2030 with respect to 2015, having approved a previous emissions reduction target of 10% for 2020 with respect to that same year.

In addition to working to mitigate climate change, it is necessary to tackle both the unavoidable physical changes in climate parameters and the social, economic and regulatory changes associated with the fight against climate change. Although risks and opportunities arising from climate change have been identified and evaluated periodically, and various measures have been applied within the framework of this analysis, in 2019, with the aim of advancing in the implementation of the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), the Company has carried out an in-depth review of governance and the process of identifying those risks and opportunities associated with climate change, incorporating the consideration of different scenarios and improving the economic quantification of the same.

Since 2011, Red Eléctrica has annually participated in the Carbon Disclosure Project (CDP⁹) survey and discloses its responses to society. The Company has established as an objective, the progressive improvement of its score. In 2019, (corresponding to the 2018 fiscal year), the Company obtained a rating of A-, maintaining itself among the leading positions.

⁹ CDP (Carbon Disclosure Project) is an independent non-profit organisation that manages and keeps updated the largest global database of corporate information on climate change to offer institutional investors a unique analysis of how companies are responding to climate change around the world.)



The **Climate Change Action Plan** is based on four main lines and a cross-cutting line of innovation: contribution to a sustainable energy model; reduction of the carbon footprint; positioning and dissemination; and adaptation to climate change. The plan includes not only the actions related to its activity as transmission agent and operator of the electricity system, but also actions related to reducing its carbon footprint.

In relation to Red Eléctrica's business, there are various activities that are particularly relevant in the fight against climate change and the achievement of European climate targets:

- Develop facilities that help facilitate the electrification of the economy, connect new renewable power capacity to the grid feeding the rail transport network.
- Achieve the maximum integration of renewable energy into the electricity system by optimising system operation and the operations of CECRE (Control Centre of Renewable Energies), the improvement of generation prediction tools, participation in regulatory proposals and the integration of energy storage systems, and participation in different promotional projects, making it possible to integrate the maximum amount of renewable energy under safe conditions.
- Contribute to the increased efficiency of the electricity system by improving knowledge on electricity demand and the development of demand-side management measures
- Prepare the system operation area for the inclusion and efficient integration of the electric vehicle
- Develop measures and studies to reduce losses in the transmission grid and increase its efficiency.

In connection with its carbon footprint, Red Eléctrica works on quantifying its emissions (GHG Inventory) and has established different actions that are described throughout this section.

Red Eléctrica is also a member of the Spanish Green Growth Group, an association for the promotion of public-private collaboration to jointly advance the decarbonisation of the economy, working on aspects related to mitigation actions and adaptation to climate change and circular economy.



7.1.1. CO₂ Emission Inventory

Red Eléctrica drafts its emissions inventory based on the methodology of the GHG Protocol. Since 2013, the inventory has been submitted to independent review in accordance with ISAE 3410.

Red Eléctrica works constantly to improve the calculation of the emissions associated with its activities, developing methodologies for calculating the carbon footprint associated with the life cycle of the different facilities such as overhead lines, underground cables, substations and other facilities. The tool that has been designed allows the footprint of the aforementioned facilities to be calculated using the project data and subsequently adjusted with the data collated during its construction.

The inventory of greenhouse gas emissions of Red Eléctrica in the last three years can be seen on the following pages.

Greenhouse gas emissions (tCO ₂ equivalent) ¹⁰	2017	2018	2019
SF ₆ ¹¹	26,453	36,921	21,289
Climate control equipment (HVAC systems)	709	545	450
Fleet vehicles	1,556	1,604	1,646
Mobile generator units	275	202	229
Total direct emissions (SCOPE 1)	28,994	39,272	23,614
Emissions associated with electricity consumption ¹²	946	801	587
Emissions derived from losses in transmission ¹³	1,162,865	1,009,953	780,865
Total indirect emissions (SCOPE 2)	1,163,812	1,010,754	781,452
Total (SCOPE 1+2)	1,192,806	1,050,026	805,066

¹⁰ The calculation of emissions is performed from an operational control perspective. The information on the inventory scope and method is available on the REE website <http://www.ree.es/en/sustainability/sustainable-energy/energy-and-climate-change/our-carbon-footprint>

¹¹ Taking GWP to 100 years: 22,800 (Source IPCC, Intergovernmental Panel on Climate Change: 4th assessment report).

The calculation of emissions is made under the operational control approach. Information on the scope and methodology of the inventory is available on the REE website.

¹² The emissions are calculated under the "market based" approach, applying the emission factors associated with the market agents that supply the electricity. The emissions calculated under the "location-based" approach would total 783,704 tCO₂eq.

¹³ The emissions associated with the transmission grid losses, in the same way as for the emissions associated with the consumption of electricity, do not occur during the activities of Red Eléctrica de España as they take place at the various electricity generation points. For the calculation of these emissions, the emission factors corresponding to each system (peninsular, Balearic Islands or Canary Islands) are calculated by Red Eléctrica de España based on the annual generation balance. There are several reasons for the decrease in emissions in 2019. The most relevant is the decrease in the average peninsular emission factor (emission factor in t CO₂/MWh: 0.219 in 2018 and 0.165 t CO₂/MWh in 2019), which mainly reflects the drastic reduction in the share of coal-fired power stations in the energy mix (69% reduction compared to 2018). The data on emissions derived from transmission grid losses for 2018 has been modified with respect to that published in the 2018 report due to the fact that in November 2019 a relevant update was made to the data on transmission grid losses. This data is obtained from the SIMEL energy metering system, which receives the data recorded by all meters in Spain. Due to various issues, this data is adjusted and updated throughout the year, taking into consideration that the regulation contemplated a period of 11 months to close the definitive information.



Indirect emissions (Scope 3) (tCO2 equivalent)	2017	2018	2019
Purchased goods and services ¹⁴	295,787	242,648	246,917
Capital goods ¹⁵	1,795,809	155,671	319,486
Energy generation (not included in Scope 1 and 2)	517	431	462
Waste	134	96	62
Transportation and distribution (logistics) ¹⁶	2,288	1,110	2,090
Business travel ¹⁷	1,487	1,394	1,441
Employee commuting	3,918	3,985	4,545
Leased assets	0	33	33
Total emissions Scope 3 ¹⁸	2,089,939	405,278	575,036

¹⁴ For the correct interpretation of the data, it is necessary to consider that the emissions associated with the acquisition of goods and services depend on the characteristics of the specific goods and services purchased each year (which entail different carbon intensities) and the financial amount earmarked for these acquisitions.

¹⁵ The emissions associated with this category are highly variable. In 2019, the emissions associated with the acquisition of substation bays, which had not been considered until now, have been incorporated into the historical series. This is the reason for the high volume of emissions indicated for the year 2017.

¹⁶ Corresponds to emissions associated with internal logistics and other emissions regarding transport of materials.

¹⁷ Includes trips made by train, plane, own vehicle, rental vehicle and taxi.

¹⁸ In 2019, the methodology used for calculating Scope 3 emissions has been changed to incorporate primary information provided by suppliers. Emissions for 2018 have been recalculated applying this new methodology. The information on the inventory scope and methodology is available on the REE corporate website. The inventory was submitted to independent review in accordance with ISAE 3410.



7.1.2. SF₆ Emissions

The main direct emissions derived from Red Eléctrica's activities are those coming from sulphur hexafluoride (SF₆).

This gas, in spite of its high potential for global warming, provides huge technical advantages. It is a non-toxic gas that allows a huge reduction in the distances to be maintained between the various elements of facilities making it possible to reduce the size of the installation and, therefore, better blend it into the landscape. The emissions of this gas are associated to small leaks in the equipment, leakages due to moving/transferring the gas and those one-off accidents/equipment faults that may occur and which make it complicated to establish reduction measures and targets for these type of emissions.

For Red Eléctrica, this is a priority issue and it has various courses of action underway aimed at improving the control of the gas and reducing leaks. The most important courses of action are the following:

- Improvement of the procedures for recording the inventory of the gas, control measures and the recording leaks.
- Training of people involved in the handling of the gas. Red Eléctrica has two legally recognised training centres with a classroom for theory class and a workshop for experiments in which 483 employees have been trained since 2013 (444 of them already have been granted the official Certificate of Competence in SF₆ gas handling).
- Renewal/replacement of switchgear. The Company is working on replacing old equipment with equipment with lower leakage rates. It is estimated that the renovations carried out in 2019 will prevent the emission of 37 tCO₂eq per year. The cumulative results of the actions carried out since 2015 has helped avoid a total of 3,139 tCO₂eq per year.
- Improvement in leak detection and control. The Company has developed, in collaboration with one of its suppliers, the innovation project 'Development of SF₆ leak repair methodology in GIS facilities', which enables the repair of breakdowns without disassembling the damaged sections and this significantly speeds up the work. This methodology has been applied in the repair works of various leaks in 4 substations, enabling a noteworthy reduction of SF₆ emissions. Further actions using this methodology are foreseen in 2020. At the same time, other innovation projects are being developed in this field, such as the 'Implementation of a leaked gas capture system in indoor GIS substations' or 'SF₆ sensors through the use of graphene-based materials.'
- Search for SF₆ gas alternatives: Since 2017, the Company has been working on the study of innovation projects that offer alternatives to SF₆ in GIS switchgear (GIS substations). Red Eléctrica has awarded and participated in the design of two 66 kV cells with alternative insulating gases and that will be installed in mobile generation units in the Canary Islands.

Additionally, Red Eléctrica continues working in collaboration with the Public Administration and other entities in the search for solutions aimed at controlling and reducing these emissions within the framework of the voluntary agreement signed in May 2015 between the Ministry of Agriculture, Food and Environment, manufacturers and suppliers of electrical equipment that contains SF₆, in order to achieve a comprehensive management of the use of SF₆.

It is important to emphasise that since 2015 the calculation of SF₆ emissions has been carried out based on the information collected during the refilling of equipment with gas. This fact meant a very significant change in the magnitude of the reported emissions and implied the need to define new reduction targets.



In line with the general target approved by SBTi, a new specific reduction target was set for SF₆:

REDUCTION TARGETS¹⁹: SF₆ emissions

Net reduction of SF₆ emissions compared to 2015: 20 % in 2020 and 25 % in 2030

Maximum cumulative emissions in the period 2016-2020: 140,000 tCO₂eq.

PROGRESS MADE IN 2019

32.7% reduction in SF₆ gas emissions compared to 2015

Cumulative emissions in the 2016-2019 period: **113,477 tCO₂eq.**

	2017	2018	2019
SF ₆ installed (kg) ²⁰	434,566	462,119	479,821
SF ₆ emissions/SF ₆ installed (%) ²¹	0.27	0.35	0.19
Total emissions (kg)	1,150	1,619	934

7.1.3. Energy efficiency

One of the cornerstones of Red Eléctrica's climate change strategy is the commitment to energy efficiency at all levels within the activities of the Company. As a key player in the electricity sector, the Company places utmost importance on efforts geared towards efficiency and energy savings due to the enormous benefits they represent in economic, social and environmental terms. The Company has in place different projects aimed at reducing the consumption of electricity in its different facilities. The increase in efficiency in energy consumption is fundamental when it comes to reducing emissions.

¹⁹ The targets are set taking 2015 as the base year.

²⁰ The increase in installed gas is mainly due to the commissioning of new facilities and the replacement of old equipment for SF₆ insulated equipment, although it is also associated with the updating of the inventory of Gas Insulated Substations (SF₆ insulated), which has enabled data regarding the gas contained in them to be ascertained.

²¹ The maximum leakage rate for equipment in service established in the Voluntary Agreement for the management of SF₆ signed in 2015 is 0.5%. This rate is fixed for equipment commissioned as of the date the agreement was signed, allowing previously installed equipment to have higher leakage rates. The leakage rate in 2019 reflects the repair work that has been carried out since the last quarter of 2018. In addition, no accidents involving gas leaks occurred during 2019.



7.1.3.1. Electricity Consumption - Reduction of Electricity Consumption

Taking into account all ²² Red Eléctrica work centres, electricity consumption in the last three years has been as follows:

	2017 (kWh)	2018 (kWh)	2019 (kWh)
Total (kWh)	15,177,175	14,583,566	14,051,381
Total (Joules) ²³	5.46*10 ¹³	5.25*10 ¹³	5.05*10 ¹³

Red Eléctrica, in addition to having an essential role in the integration of renewables, is committed to the use of renewable energy to cover the energy consumption of its own facilities. **87% of the electricity consumed comes from renewable sources** (energy with a Guarantee of Origin (GoO) or green energy).

REDUCTION TARGETS: Electricity consumption

Reduction of emissions associated with electricity consumption: 85% in 2020 and 90 % in 2030

Reduction of electricity consumption in work centres²⁴: 10% in 2020 and 30% in 2030

PROGRESS MADE IN 2019

Reduction of **89.2%** of the emissions associated with energy consumption in the work centres 2019 vs 2015

Reduction of **16.4%** of the emissions associated with energy consumption in 2019 vs 2015

7.1.3.1.1. Specific Energy Measures Implemented in 2019

The main courses of action regarding the reduction of electricity consumption in 2018 were the following:

- Improvement of energy management of existing buildings and applying efficiency criteria in the construction of new buildings. Energy management system certified under ISO 50001 for buildings at the head offices.
- Reduction of electricity consumption in substations by selecting more efficient equipment and components, establishing efficiency guidelines for their use and the rationalisation of the use of lighting.
- Reduction of electricity consumption associated to the use of IT equipment: Renewal of IT equipment and systems, and the implementation of policies for the efficient use of equipment.
- Raising awareness among employees and the collaborators who work in the facilities of the Company by means of awareness raising campaigns.

²² Includes the consumption of the Head Office, the electricity control centres (centres that operate 24/7 and have a high energy consumption) and the work centres (Regional offices and maintenance centres). Since 2016, consumption of electric vehicles is included. The 2018 data includes the electricity consumption of telecommunications shelters (activity of REINTEL, a telecommunications company of the Red Eléctrica Group). In 2019, 87% of the electricity consumed has come from renewable sources.

²³ 1kWh = 3.6*10⁶ Joules; Total consumption data in Joules following criteria defined by GRI G4.



Buildings	
Head Office and Red Eléctrica Campus	Energy management system certified under ISO 50001
New buildings	The control centre (CECORE) has been moved to a new building. This building takes full advantage of geothermal energy and has construction measures that will help bring it closer to zero consumption values (Nearly Zero Energy Buildings, nZEB). The savings derived from this move will be reflected in the values reported next year.
Existing buildings	Improvements in HVAC systems, lighting and insulation in 11 work centres, which will mean an estimated saving of 61,065 kWh per year .
Optimisation of assets	The offices in the Northern and North-Western Regional Offices were moved (first quarter of 2019) to new buildings, more suited to the needs of the staff. The estimated saving in electricity consumption for both buildings is more than 80%.
IT Systems	
Renewal of IT equipment and systems according to criteria of maximum efficiency	Renewal of IT equipment in 2018 (laptops, desktops and data storage systems) representing an estimated reduction in electricity consumption of 8,174 kWh per year .
Application of efficient use policies	The measures implemented since 2016 represent a decrease of 20% in the average energy consumption per computer.
Migration to and an intensive use of virtual services (as of 2015)	These represent a 50% reduction in energy consumption compared to physical servers.
Improvement of IT systems	Improvement of the IT systems of the Electricity Control Centre (CECOEL), which entails an estimated annual saving of 75,000 kWh (around 2.5% of its consumption).
Substations	
Rationalisation of the use of lighting	Since 2017, work has been underway to improve remote control systems for lighting, which has enabled the lighting of a large number of substations to be switched off at night. The aim is to switch the lighting off at night, operating only when necessary. In 2019, control systems were implemented in 405 substations, which represents an energy saving of 9,714,520 kWh per year .
Raising awareness	
Awareness-raising campaigns	Awareness campaigns for employees and collaborators who work at the Company's facilities.



Moreover, noteworthy are the HVAC systems based on the use of geothermal energy that have been installed in two buildings: work centre of San Sebastián de los Reyes and University Campus of Tres Cantos and work is underway for installing this kind of HVAC system in a third building which will significantly reduce the consumption of electricity.

Reductions in energy consumption ²⁵		
	kWh/annually	Joules/annually
Efficiency measures in work centres: optimisation of assets.	134,690	4.8*10 ¹¹
Efficiency measures in electricity substations: switching off of night-time lighting.	9,714,520	3.5*10 ¹³
Efficiency measures in IT computer equipment: renewal of laptops, desktops and data storage systems and improvement in systems in CECOEL.	83,758	3.0*10 ¹¹

Reduction of greenhouse gas emissions	
Net savings	t CO ₂ eq
Savings in emissions due to contracting an electricity supply with a guarantee of origin. ²⁶	2,252
Reduction of SF ₆ emissions as a result of repairing leaks.	10,783
Reduction of emissions due to improvements in delivery processes of equipment and materials (internal logistics)	4.78
Annual savings ²⁷	tCO ₂ eq/year
Efficiency measures in work centres: optimisation of assets.	1,603
Efficiency measures in electricity substations: switching off of night-time lighting.	3.5
Efficiency measures in IT computer equipment: renewal of laptops, desktops and data storage systems and improvement in systems in CECOEL.	36.5
Reduction of emissions due to the daily commute/work-related travel as a result of the implementation of a flexible working pilot programme ²⁸	59.2

²⁵ The estimated annual reductions derived from the measures implemented in 2019 have been included (estimates made based on equipment specifications or actual data on reduced consumption depending on the implementation of the measures).

²⁶ Electricity with Guarantees of Origin: 0 t CO₂/kWh.

²⁷ Reductions associated with the measures implemented in 2019.

²⁸ Emissions avoided by reducing the daily commutes/work-related travel of employees who are part of the programme.



7.1.3.2. Sustainable Mobility

Red Eléctrica maintains a clear commitment to efficiency in mobility. In addition, Red Eléctrica has for several years been working on optimising the trips made required to carry out its activity and reducing the emissions associated with the same.

In 2014, the Company decided to give a greater impetus to this task and approved its Sustainable Mobility Plan with the aim of incorporating a new culture of mobility within the Company. The most important measures developed in recent years include:

- **Efficient management of fleet vehicles**, by progressively improving the energy rating of vehicles used by selecting the best existing technologies. In 2019, 98% of the vehicles renewed have been done so for vehicles of the highest energy rating and a further 10 new charging points for electric vehicles have been installed. Additionally, the optimisation of their use through the application of CARS (Agile, Responsible and Safe Driving System) enables the use of efficient routes and promotes responsible driving. Thanks to all these actions, since 2015 Red Eléctrica has maintained the 'Ecological Fleet Accreditation' in its 'Master' category (the most demanding one) received from the Fleet Managers Association (AEGFA) and the Institute for Diversification and Energy Saving (IDAE).
- **Measures to optimise work-related travel**, through the incorporation of sustainability criteria in the Company's work-related travel policy. Implementation of a corporate fleet of electric vehicles for commuting during the working day, prioritisation of the use of efficient taxis and improvements in communication tools to reduce the need for travel (video conferences and platforms for remote access).
- **Rationalising the use of private vehicles** in the daily commute to work centres. The Company has a Company bus service and shuttle services connecting the office with various locations. The transport pass is included among the options of the benefit in kind for employees and the use of car-sharing is promoted. Additionally, 11 charging points were installed in 2019 for use by non-directorship positions.

Climate Change Action Plan Target: SUSTAINABLE MOBILITY

Reduction of emissions associated with the use of Red Eléctrica vehicles: 30% in 2020 and 50% in 2030 vs. 2015.

Progress made in 2019: **22.5%**

Reduction of emissions associated with business travel using vehicles: 20% in 2020 and 40% in 2030 vs. 2015.

Progress made in 2019: **48.1%**



Fuel consumption (litres) during 2019 associated with vehicles:

	2017	2018	2019
Diesel (l)	567,942	462,169	443,251
Gasoline (l)	52,124	201,470	250,643
Biodiesel	0	0	0
Autogas (LPG)	0	0	0
Total vehicle fuel ²⁹ (l)	620,066	663,639	693,894
Consumption of mobile generator units ³⁰ (not associated to vehicles) (l)	1,212	3,476	2,472
Fuel consumption (Joules) ³¹	2.28*10 ¹³	2.4*10 ¹³	2.5*10 ¹³

7.1.4. Carbon Footprint in the Supply Chain

The emissions associated with the supply chain are those that have the greatest impact on the indirect emissions of the Company (Scope 3). Therefore, a roadmap has been designed in order to continue improving in the management of these emissions. The main objectives sought are:

- Involve suppliers in Red Eléctrica's commitment, providing appropriate guidelines to suppliers in order to promote changes in its management and to foster collaboration.
- Integrate more direct information in the calculation of Scope 3 emissions, to improve their analysis and monitoring.
- Be willing to establish ambitious commitments for the reduction of Scope 3 emissions.

In 2019, the first phase of the Supplier Collaboration Programme was carried out, involving 23 of the organisation's most relevant suppliers, which account for around 57% of the supply chain's emissions.

Thanks to this project, the emissions inventory has been improved by incorporating part of the direct information provided by the participants. Similarly, each of the suppliers has been qualified with a level of maturity in the area of climate change, which allows, in addition to making a general diagnosis of the supply chain, different and specific development and collaboration programmes to be deployed depending on the characteristics of each supplier. These actions will begin to be implemented throughout 2020.

7.1.5. Offsetting of Emissions

Red Eléctrica has launched various alternatives for the reduction of its emissions and to help reduce its carbon footprint as much as possible. However, given the nature of the emissions (the main direct emissions are unclear) and the characteristics of the activities carried out by the Company, it has implemented additional offsetting measures in order to achieve greater progress.

²⁹ Fuel consumed by Red Eléctrica vehicles (fleet vehicles, shared leasing and management vehicles)

³⁰ Corresponds to diesel refilled in the fuel tanks of mobile generator units in the year indicated.

³¹ 1 litre diesel = 37*10⁶ joules; 1 litre of gasoline = 34*10⁶ joules; 1 litre of gas oil = 37*10⁶ joules; 1 litre of biodiesel = 32.79*10⁶ joules; 1 litre of LPG = 25.7*10⁶ joules.



The main action carried out by the Company for offsetting emissions is the 'Red Eléctrica Forest' project, described in the section of this report entitled 'Conservation of natural capital'.

In addition, for the seventh consecutive year, the Company has offset part of its emissions derived from the daily commutes of its employees by **purchasing 2,700 VCUs** (Verified Carbon Units) under the VCS (Verified Carbon Standard), which corresponds to the emissions generated by all those workers who took part in the 2019 mobility survey (59% of the workforce). Said offsetting measures were carried out by supporting the project in Peru against the deforestation of land for Brazil nut plantations; a project that is geared towards the protection of 500.000 hectares of forested areas and the promotion of local employment thanks to the creation of a processing plant for the nuts, the promotion of reforestation activities and the control and monitoring of the plantations.

7.1.6. Transmission Grid Losses

The emissions associated with energy losses in the transmission grid are accounted for within the emissions of Scope 2, as indicated by the GHG Protocol. These emissions are calculated taking into account the energy lost in the grid (transmission grid losses) and the emission factor of the energy mix (calculated by Red Eléctrica according to the amount of energy generated by the different technologies). None of these variables are under the direct control of Red Eléctrica de España, although it should be noted that increased efforts to integrate more renewable energy into the energy mix results in a lower emission factor and therefore a greater reduction in emissions associated with losses. None of these factors is under the control by the Company.

The transmission of electricity inevitably leads to energy losses in the grid. This means that, to satisfy a given final consumption, a slightly higher level of generation is required.

Several factors generate losses: The Joule effect, the corona effect and the own consumption of the electricity substations necessary for their correct operation. Of these, the most relevant, without a doubt, is the Joule effect³², associated with the flow of current through the conductors.

Red Eléctrica works to improve the aspects that depend on its management and that can influence the reduction of these losses. Among them, the following actions are noteworthy:

- Development and meshing of the transmission grid.
- Increase in the number of conductors per circuit.
- Use of technologies and systems with the best performance.
- Maintenance of the facilities in the best conditions to ensure their proper functioning.

The first two measures seek to create parallel routes in order to allow a given intensity to flow, which in turn results in lower resistance and, therefore, reduced losses. However, all these improvements have a minor impact on the evolution of energy losses, with those other aspects, not controlled by Red Eléctrica, having the greatest influence.

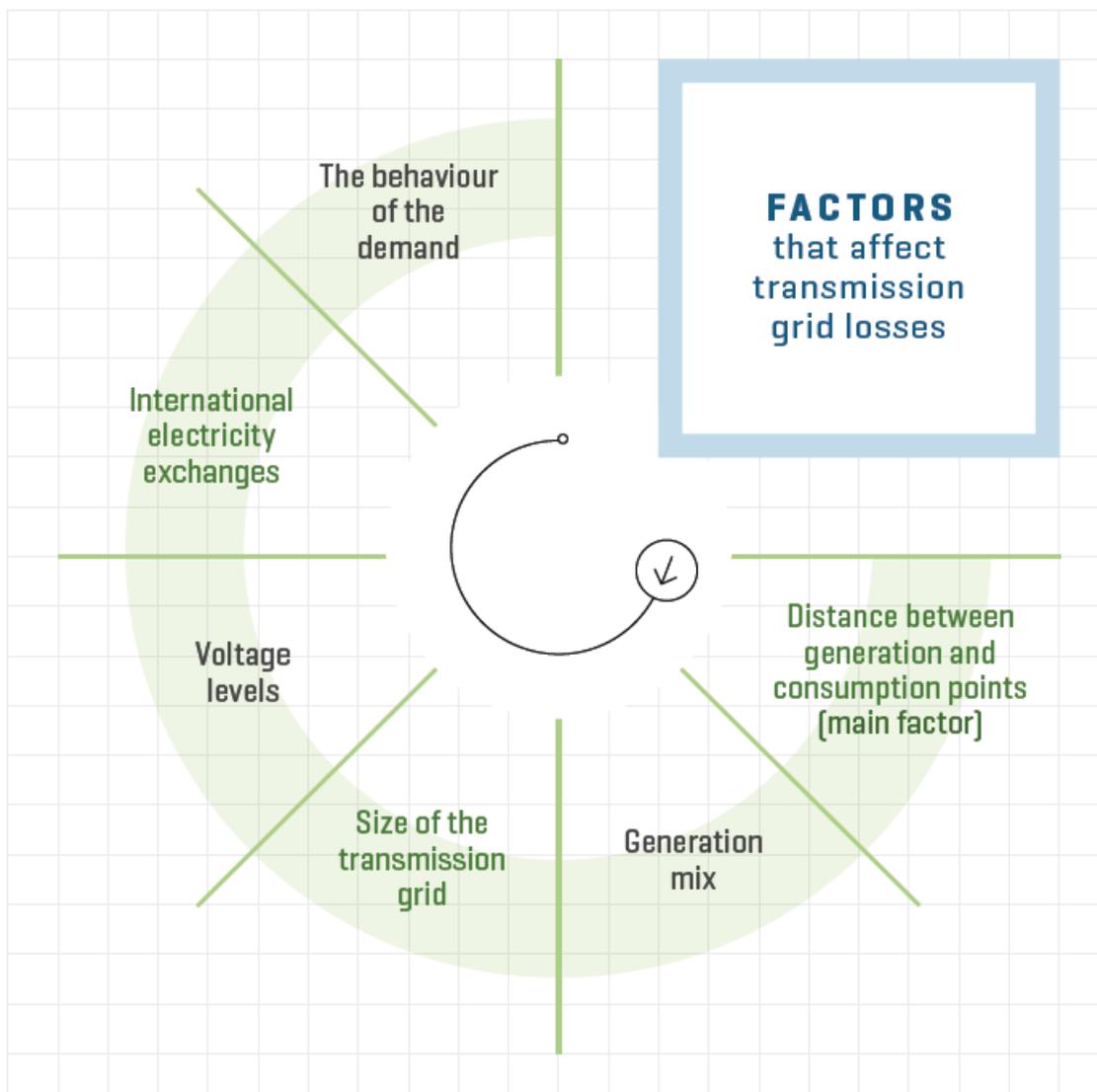
³² Joule effect: the effect whereby, when an electrical current flows through a conductor, part of the kinetic energy of electrons is transformed into heat which thereby raises the temperature of the conductor. Joule effect losses are proportional to the intensity flowing through the conductor and the resistance thereof, the greater the length of the line the greater this resistance is. In view of this, it can be understood that the losses are mainly related to the distance between points of generation and consumption, which is determined by the result of the wholesale electricity market.



The increase in energy losses mainly depends on the following: distances between generation and consumption points (losses increase notably when there are significant distances), the amount of energy demanded in the year, the electricity generation mix, international energy exchanges and the shape of the demand curve. In the case of the Spanish electricity system, the increase in losses is usually related to the share of renewables in the energy mix (as this type of generation is not usually close to the consumption points).

The electricity generation structure depends on the rules of the electricity market, regulated by an independent body. The function of Red Eléctrica de España as operator of the electricity system is carried out in accordance with specific and mandatory operating procedures. According to these procedures, it is not possible to operate the electricity system based on loss reduction criteria, so the Company has little capacity to act in relation to said reduction.

On the other hand, it is important to note that, in the case of the Spanish electricity system, the increase in losses is closely related to the share of renewable energy in the generation mix. Normally, increases in hydro and wind energy generation are related to increased transmission distances (this type of generation is not usually quite far from the consumption points).





7.2. Biodiversity – Natural Capital

One of the challenges assumed by the Red Eléctrica Group in accordance with its commitment to biodiversity is to promote the conservation of natural capital through active participation or the promotion of projects in collaboration with the public administrations, NGOs and other stakeholders.

The protection and conservation of biodiversity have always been essential elements in Red Eléctrica's environmental management. Red Eléctrica has a specific commitment for the management of biodiversity and a multi-year Biodiversity Action Plan which include the challenges and main objectives, as well as the main projects to be carried out.

The courses of action regarding the Commitment are the following:

- Development of the transmission grid and the protection of biodiversity: search for and implementation of solutions that help make the Company's activities compatible with the protection of biodiversity.
- Biodiversity conservation: promotion and collaboration in the conservation of species of fauna and flora, especially those linked to the activity of the Company.
- Dissemination of information to stakeholders regarding the actions carried out by Red Eléctrica and the Company's stance on biodiversity.
- In addition, the Company works in two cross-cutting areas, whose development is fundamental in order to be able to advance in the three aforementioned courses of action.
- Improvement of biodiversity management: development of new systems, procedures and the implementation of new approaches and methodologies.
- Innovation applied to the management, protection and conservation of biodiversity.

The results of the 2017-2021 Biodiversity Action Plan are included in the annex: 'Environmental Actions 2019' of this environmental statement.

Red Eléctrica maintains alliances in matters of biodiversity conservation with the competent areas of the public administration and other organisations in the different autonomous communities. The following alliances with organisations of reference are also noteworthy:

- Red Eléctrica continues to be a member of the Biodiversity Pact. The Pact, promoted by the Ministry of Ecological Transition, aims to show the commitment of the Red Eléctrica Group to the conservation of biodiversity. In the same way, the Company is part of the Spanish Initiative for Business and Biodiversity (IEEB) also promoted by the Ministry of Ecological Transition. In 2019, progress in this area has been reported in the summary report of the results published by the IEEB for the period 2016-2018: https://ieeb.fundacion-biodiversidad.es/sites/default/files/aaff_informe_v_digital.pdf
- Signing of the framework agreement for relations (2018-2021) with the Centre for Mediterranean Cooperation (International Union for the Conservation of Nature).
- Signing of a framework agreement with SEO Birdlife (Spanish Ornithological Society) for the conservation and protection of biodiversity (2018-2021).
- Signing of the Agreement for the formalisation of the 'Natural Capital in the Spanish Energy Sector' working group.

Detailed information on all the projects spearheaded or in which Red Eléctrica participates can be found on the Red Eléctrica website: <https://www.ree.es/en/sustainability/map-of-projects>



7.2.1. Natural Capital

Within the framework of the goals set in its 2030 Sustainability Commitment, the Red Eléctrica Group has undertaken to generating a positive net impact on natural capital in the vicinity where its facilities are located. In order to advance towards meeting this objective, Red Eléctrica is working on incorporating the concept of natural capital into its management.

In accordance with the guidelines of the Natural Capital Protocol and given the relationship of interdependence of the Group's activity with society, Red Eléctrica understands natural capital as the inventory of assets or natural resources of an ecosystem, whether biotic or abiotic (biodiversity, air, water, soil, minerals) which, combined or by themselves, provide society with benefits: ecosystem services.

During 2019, based on a pilot project carried out on an existing facility, the Company worked on the design of a methodology and analysis for the responsible assessment of natural capital. In view of the impossibility of measuring the total value of natural capital, responsible assessment considers the measurement of changes of the same and the influence it has on Red Eléctrica's business model.

In this regard, the following work was carried out:

- Identification of the natural assets most related to electricity transmission: **habitat, soil and landscape** (UN classification)
- Analysis of positive and negative impacts and dependencies of transmission system facilities on said natural assets.
- Identification of the 21 most relevant ecosystem services for the conservation of biodiversity related to the natural assets identified and to the transmission grid.
- Design of an assessment system for each of the ecosystem services identified.

From 2020 onwards, the Company foresees making progress in the adjustment of the information gathered in the environmental impact studies for new facilities in order to calculate the responsible assessment of value of the natural capital of these facilities.

The development of this methodology and its application will allow progress to be made in the quantification of the impacts (positive and negative) of electricity transmission facilities on ecosystem services and, therefore, raising awareness on the net balance of its impact on biodiversity. This quantification will facilitate, among other things, the definition of offsetting measures and their desired level of fulfilment and will help identify the positive impacts on which to focus efforts. In this way it will be possible to move towards the positive impact sought.

Furthermore, as part of the Spanish energy sector working group on natural capital, work was carried out in 2019 to establish a Sector Guide for the integration of natural capital in the energy sector. In addition to Red Eléctrica, the working group includes Acciona, Cepsa, EDP, Enagás, Endesa, Iberdrola, Naturgy and Repsol, and is coordinated by Azentua and Ecoacsa.



7.2.2. Electricity Grids and Biodiversity

Red Eléctrica's facilities are distributed nationwide, as the aim of the electricity transmission grid is precisely to connect the points of energy generation with those of consumption.

Biodiversity management is carried out taking into account the **hierarchy of impact mitigation**. The potential effects on biodiversity are associated with the presence of the facilities in the territory and with the construction and maintenance of the same.

Avoiding areas rich in biodiversity is one of the priority criteria taken into account both in the grid planning phase as well as in the definition of each project. However, bearing in mind that 25% of the surface area of Spain has some form of environmental protection, it is inevitable that in some cases infrastructure will cross or be located in protected areas or areas with species of interest.

On these occasions, Red Eléctrica implements all the preventive and corrective measures required to **minimise** the possible impacts on habitats and species (impacts associated with construction work and the modification of facilities, impacts on birdlife as a result of collisions and fire risks). These measures also include the **restoration** of affected areas, when possible. Moreover, they are complemented by environmental improvement actions to help **offset** the impacts that may have occurred and enhance biodiversity in those areas where the facilities are located.

Lastly, the Company carries out different environmental improvement actions aimed at promoting biodiversity in the vicinity of the facilities. In addition, Red Eléctrica encourages and collaborates with the public administration, non-governmental organisations, research bodies and other interested parties in the development of biodiversity conservation projects. These measures and projects are aimed at offsetting the impacts that may possibly have been produced during the execution of the activities.

Currently, Red Eléctrica's facilities occupy only 0.08% of Red Natura Española. Of all existing infrastructures, only 15.6% of total lines and 5.7% of substations are located in protected areas (Red Natura 2000).

7.2.3. Protection of Birdlife

The main impact on fauna by Red Eléctrica's facilities is the risk of birds colliding with grounding cables that protect the lines from electrical discharges during storms. The main measure to reduce that risk is **marking the grounding cables** with devices that increase their visibility.

In 2019, 393 km of line were marked with bird-saving devices. The percentage of kilometres marked with respect to the total kilometres of lines stood at **13.9%** (4,090 km of line marked out of a total of 29,411 km of overhead lines).

Thanks to the project '*Birds and power lines: Mapping of bird flight paths*', which ended in 2016, the Company has a multiyear line marking plan in place for 2016-2023 in which priority is given to actions on sections of line with the greatest potential impact on birdlife. The execution of this plan will mean a reduction of 25% in the potential risk of birds colliding with overhead electricity lines.

At present, the line sections that have been identified as having a critical priority level, total 757 km in length, of which 459.7 km have already been marked, which represents **60.7%** of the target set.

Red Eléctrica also works on other relevant projects in relation to protecting birds from colliding with lines, noteworthy among which is the analysis of the effectiveness of the blade-type bird-saving device in various bird communities, a project undertaken in collaboration with the Spanish National Research Council (CSIC). In 2019, the results regarding their effectiveness were submitted to MITECO for their assessment in order to consider the possibility of these bird-saving devices becoming a standard measure.



7.2.4. Protection of Habitats and Species

Regarding works associated with the construction of lines or the modification of facilities, the main impacts to be avoided are the alteration of the habitat of certain species of fauna and flora, and also the impact on vegetation due to the opening up of safety corridors, necessary to prevent fires in the operation of the line. Among the preventive and corrective measures applied, noteworthy are the following:

- Detailed field studies on specific issues, such as impact reports on Red Natura and surveys to identify the presence of protected flora and fauna.
- Introduction of modifications in the design of facilities to mitigate their impact on flora: compacting or increasing the height of towers, relocation of towers, modification of access roads etc.
- Construction of decanting pools and filters to prevent contamination of waterways.
- Signage and protection of habitats and species of high ecological value to avoid them being harmed when carrying out works.
- Use of construction techniques that minimise earthworks and the occupation of land (reducing the opening up of access roads, size of work sites and storage areas for materials): hoisting structures with a boom crane, hanging of line by hand, or carrying out works using a helicopter or drone.
- Transfer to other areas and replanting of species affected by the work.
- Biological stoppages in 100% of the works during breeding or nesting periods to reduce impacts on the fauna that may be affected.
- Recovery of affected areas: restoration of slopes, sowing of seed and the planting of flora.
- Accompanying measures and the carrying out of specific projects to improve biodiversity in affected areas.

The specific measures that are noteworthy regarding the protection of habitats and species during 2019 are included in the Annex: 'Environmental Actions 2019' of this environmental statement.

7.2.5. Contribution to Biodiversity Conservation

Red Eléctrica actively contributes to the conservation of Spain's biodiversity, leading or participating in various projects and carrying out dissemination and training activities in environmental matters. Although working in different areas, within the biodiversity action plan, the objective of the project is the definition and execution of wildlife conservation projects, mainly related to focal bird species (prone to collision). Most of the projects are aimed at the conservation of endangered bird species, although other species of fauna and flora are also included.

Also relevant are the actions aimed at restoring degraded habitats, among which the 'Red Eléctrica Forest' project is noteworthy.



7.2.5.1. Noteworthy Projects regarding the Protection of Habitats and Vegetation

- *Hábitat* Project (2015-2021)³³

The aim of this project is to know the Priority Habitats of Community Interest and other flora and vegetation formations of interest (included in other protection schemes due to their endemic nature, scarcity, or rarity), that exist within the vicinity of Red Eléctrica facilities, as well as its state of conservation. The objective is to have information on the interaction between electricity transmission infrastructure and these habitats, and use it to make decisions regarding maintenance, so that the conservation of these habitats and flora and vegetation formations is ensured through the adequate management of its maintenance.

The first phase of the Project consisted of the mapping and characterisation of the flora and vegetation formations of interest present within the vicinity of the facilities (50 metres on each side of the route of the line in 100 % of the transmission grid). As a result of this work, carried out in collaboration with the autonomous communities and experts on the subject, a digital mapping was developed with all the information, which was later validated in the field.

30,361 hectares of ecosystems of interest (Priority Habitat of Community Interest and others) have been identified in the vicinity of Red Eléctrica facilities (30% of the total area of influence of the facilities).

During 2019, work was carried out on the standardisation of the information obtained from the different autonomous communities, with the aim of integrating it into a single national layer compatible with the corporate geographic information system (GeoRed).

In addition, a system of indicators is being developed to assess the impact, reflecting the habitat's state/pressure it is under/ how it responds to the impact and the subsequent monitoring of the influence that activities have on the habitats.

Lastly, a comprehensive proposal will be formulated for the management and improvement of the habitats of interest, consistent with the maintenance needs of the facilities.

- Recovery of the dune system of the beach in the Llevant area of Formentera (2012-2020).

In collaboration with the Ministry of Environment, Agriculture and Territorial Planning and the Bureau of Coastal Regulation in the Balearic Islands. Maintenance and monitoring tasks are carried out.

- Sustainable and adequate management of the different populations of orchids and, especially, regarding the bee orchid (*Ophrys apifera*) 'almaracensis' variety.

In collaboration with the Extremadura Regional Government (2017- ongoing).

³³ Aligned with the State Green Infrastructure Strategy and Ecological Connectivity and Restoration (EEIV) of the Ministry of Ecological Transition and the Demographic Challenge (MITECO).



7.2.5.2. Conservation Projects in relation to Focal and Threatened Species

The detailed information of all the projects spearheaded by Red Eléctrica or in which it participates in relation to threatened species can be found in the following sections of the website:

<https://www.ree.es/en/sustainability/the-natural-environment/avifauna>

- **Monachus project: reintroduction of the Black vulture (*Aegypius monachus*) in the province of Burgos**
As part of the project, in 2019, 13 individual birds were tagged and released, and two artificial nests were built. Communication actions were carried out such as the signing of a manifesto of support for the project by the hunting society (200 hunters) and the 'lead-free hunting' initiative (124 hunters). Similarly, the 4th International Vulture Awareness Day was celebrated (500 people).

- **Effects of global and local change on populations of Egyptian Vultures on the Iberian Peninsula (*Nephron percnopterus*).**

In 2019, there were 20 occupied territories with stable demographic parameters. 21 chicks were ringed; 8 new birds were tagged; 2 roosts close to the rubbish dump were monitored; The project has won the first prize in the sixth edition of the Delta Birding Festival 2019. The project was presented at the Parc Castell Montesuiu conference.

- **Environmental education and Aquila a-Life project for the Bonelli's eagle (*Hieraetus fasciatus*) in Majorca**

The Bonelli's eagle population on the island of Majorca is made up of a total of 36 birds and 8 territorial pairs have been created throughout the island. Six of these pairs have had reproductive success and 8 chicks fledged in 2019. Seven of them were tagged and fitted with a radio transmitter. Two bird-saving floating platforms were built and installed, and ecological monitoring of the species began in 2019 in 3 territories where a pair lives.

- **Actual impact of supplementary feeding on the spatial and reproductive ecology of Bonelli's eagles (*Hieraetus fasciatus*) in the Community of Valencia.**

A total of 34 Bonelli's eagle belonging to 15 different territories were captured, tagged and fitted with a radio transmitter. The supplementary feeding points are used by the eagles reducing their territorial area and with it, therefore, the energy they expend in hunting. In 2019, 3 eagles were tagged and the number of nesting territories increased by two.

- **Nesting platforms for Osprey (*Pandion haliaetus*) in Andalusia.**

Since 2011, a total of 30 chicks have fledged the nests fitted on the platforms installed on 3 electricity towers in the province of Cadiz. During 2019, a fourth nesting platform was installed. Of the 12 chicks fledged in Andalusia, 42% were born on REE towers (5 chicks) and of the 10 breeding pairs existing in Andalusia, 3 of them use the REE towers (30%)

This project showcases the relevance of the electricity transmission grid as a biodiversity corridor, aligned with the State Green Infrastructure Strategy and Ecological Connectivity and Restoration (EEIV) of the Ministry of Ecological Transition and the Demographic Challenge (MITECO).

- **Other actions for the conservation of birdlife undertaken during 2019:**

- Analysis of the impact of White stork (*Ciconia ciconia*) nesting on electricity transmission towers on the biodiversity of the environment in the province of Huelva, in Andalusia. In collaboration with the Doñana Biological Station (belonging to CSIC) (2019-Oct. 2020) In 2019, a bibliographic review and identification of the lines under study in the province of Huelva was carried out. Fieldwork has begun.



- Recovery of the population of the Golden eagle (*Aquila chrysaetos*) in Galicia. (IUCN Red List species of least concern). Since the project began, a total of 12 birds of this species have been released using the hacking method. Since 2013 a total of 3 chicks have been born within the territory of the Xurés Natural Park, a fact that had not occurred since 1997. Five territorial pairs have been formed, which represents an increase in the reproductive population of the Golden eagle in Galicia. In 2019, four birds were radio tagged and released, and four educational talks were given to schools. Collaboration with GREFA (2011-2019).
- Monitoring, conservation and recovery of the Iberian Imperial eagle (*Aquila adalberti*) population in the Doñana natural area. In 2019, individual monitoring continued of all the birds that form part of the population. In addition, action was taken regarding 35 Imperial eagle nesting platforms (artificial and natural) by using a cherry picker, which has also made it possible to ring the chicks. Supplementary feeding through the provision of a total of 300 rabbits. Of the 9 territorial pairs detected at the beginning of the breeding season, 7 produced a clutch of eggs, with a total of 10 fledgling chicks.
- Technical programme for the execution of satellite radio monitoring work of Golden eagles (*Aquila chrysaetos*) in Navarra. In 2019, a pair of Golden eagles was baited for capture and radio tagging in 2020.
- Execution of the project regarding preliminary actions for the expansion and establishment of the Black vulture in Aragón. In collaboration with the TRENCA Foundation (signed in 2019) and the support of the Regional Government of Aragón. During 2019, a list of livestock associations, agricultural organisations and Regional Agricultural Offices was drawn up and meetings were held with ASAJA and UAGA (farmers' associations in Aragón). In addition, a pre-selection of potential areas for the reintroduction of Black vultures was made.
- Foraging area and movements of the Canary Houdouard (*Chlamydotis undulata fuerteventurae*) carried out in collaboration with the Museum of Natural Sciences (belonging to CSIC). 48 birds were tagged in Lanzarote and 5 in Fuerteventura (captured in late 2019). Movement patterns detected are between 10 km (males) and 25 km (females), distinguishing between sedentary individuals (mostly males) and migratory individuals (mostly females). In 2019, the radio-tracked birds were monitored and tagged in Fuerteventura. An article was published in the *Ardeola* magazine and also in the British Ornithologists' Union Blog. A poster was made and exhibited at the 12th Spanish and the 7th Iberian Ornithology Congress.
- Support for the project for the reintroduction of the Bearded vulture (*Gypaetus barbatus*) in the Tinença de Benifassa Natural Park. In 2019, the purchase was made of a TV monitor, surveillance cameras and camera traps.
- The study 'Patterns of Use of Transmission Lines by Egyptian vultures (*Neophron percnopterus*) tracked via GPS34 devices', on the island of Fuerteventura, in Canaries. In collaboration with the Doñana Biological Station (belonging to CSIC) (2019-May 2021). No progress was made in 2019.
- Installation in the Tafalla35 substation (Navarra) of a base station for collecting data on the movements of the Lesser kestrel (*Falco naumanni*). In collaboration with GREFA.
- Construction of an observatory station for the Northern bald ibis (*Geronticus eremita*) in Barca de Vejer, in Cadiz, Andalusia. Collaborated with *Sociedad Gaditana de Historia Natural*.
- Reintroduction of the Lesser kestrel (*Falco naumanni*) in the Community of Valencia by means of a free-range breeding method. In collaboration with the Regional Government of Valencia (2013-2021), linked to the framework agreement of collaboration regarding biodiversity.

³⁴ Aligned with the State Green Infrastructure Strategy and Ecological Connectivity and Restoration (EEIV) of the Ministry of Ecological Transition and the Demographic Challenge (MITECO).

³⁵ Aligned with the State Green Infrastructure Strategy and Ecological Connectivity and Restoration (EEIV) of the Ministry of Ecological Transition and the Demographic Challenge (MITECO).



7.2.5.3. The 'Red Eléctrica Forest'

Red Eléctrica Forest is an ongoing project, started in 2009, which aims to offset part of the Company's emissions through the planting trees and the recovery degraded natural spaces on publicly owned land, thus contributing to the conservation of biodiversity. Additionally, this initiative supports the development of local economies by contracting work to companies or groups in the area, as well as raising awareness regarding the importance of forests in addition to involving the local population and employees of the Company in this initiative.

In 2019, a new agreement was signed with the Regional Ministry of Public Works and the Environment of the Government of Castilla y León for the restoration of 75 hectares of public utility land in the municipality of Agallas (Salamanca).

Red Eléctrica Forest in figures 2009-2019

Trees and shrubs planted: 682,093 units

Surface area recovered: 843 ha

Emissions offset: 194,791 t of CO₂ eq.

Investment: 2,126,327 €

o The 'Red Eléctrica Marine Forest'

Posidonia oceanica is a marine plant endemic to the Mediterranean that forms a habitat of priority interest and is an essential ecosystem for numerous organisms to complete their life cycle. Similarly, *Posidonia* seagrass contributes to the control of water quality and the protection of the coastline, as well as being one of the main CO₂ sinks in the sea.

Posidonia seagrass meadows can be affected for various reasons, including the construction of submarine electricity cables. For this reason, Red Eléctrica promotes different actions aimed at their conservation.

Between 2012 and 2016, in collaboration with the Mediterranean Institute of Advanced Studies (CSIC-IMEDEA), the Company developed an R&D+i project on the use of seeds or fragments of *Posidonia oceanica* in the restoration of degraded areas of its natural habitat. Following this, in 2017 an agreement was signed with CSIC-IMEDEA and the Balearic Islands Government for the restoration of 2 ha of *Posidonia* seagrass meadows in Bay of Pollensa, where work has already been completed on 1.5 ha.

In 2019, the 'Red Eléctrica Marine Forest' received an award at the 12th edition of the Cinco Días Business Innovation Awards in the category of the most innovative business initiative in corporate social responsibility.

In 2019, within the framework of the Collaboration Agreement on good anchoring practices to avoid affecting submarine links and *Posidonia oceanica*, signed with the Balearic Islands Government, Red Eléctrica has provided 14 remotely operated underwater vehicles for monitoring the seabed and in particular the state of the *Posidonia oceanica* seagrass meadows.

To further raise awareness of the conservation of marine environments and specifically that of *Posidonia oceanica*, Red Eléctrica participates in the promotion of various educational programmes:

- 'Bringing *Posidonia* into the classroom' in collaboration with the teaching community of the Balearic Islands and IMEDEA (Mediterranean Institute for Advanced Studies). Within the framework of this programme, informative sessions and field visits are carried out for students from the region. In the 2019-2020 academic year, a total of 10 schools will participate and will be provided with aquariums and magnifying glasses.



- Collaboration with the Marine Interpretation Centre ‘Aula de la Mar’ in Majorca in a programme of workshops for schoolchildren. In the 2017/18 and 2018/19 academic years, 255 workshops were given and 120 more are scheduled for 2019/2020. Also, throughout the next year, the centre will host a thematic exhibition on Posidonia and the Red Eléctrica marine forest.

In addition, an ecological study on the invasive Asian algae (*Rugulopteryx okamurae*), on the coast of Tarifa, in Andalusia, began during 2019 in collaboration with the Research Foundation of the University of Seville.

7.2.5.4. Innovation Projects in the Management, Protection and Conservation of biodiversity

The cost of innovation in biodiversity is €193,095, 1.9% of REE’s total investment in innovation. The following projects were carried out during 2019:

Innovation Project regarding biodiversity management, protection and conservation	
Vegeta	The objective of this project is to optimise vegetation management tasks facilitating the incorporation of legal requirements and environmental criteria into these tasks. In 2019, an algorithm (Vegeta algorithm) was defined which, based on the input variables and technical and environmental criteria, analyses the information and creates the optimum action plans. This algorithm includes information on environmental regulations specific to each of the Autonomous Regions (Autonomous Communities). This year, this algorithm has already been applied to felling works for one specific line.
Prodint	A system developed by Red Eléctrica for the early detection of forest fires, using the towers of the transmission lines and by means of sensors based on Internet of Things (IoT) technology, which capture the radiation emitted by the fire and automatically sends warnings to the system operator. This makes it possible to reduce the arrival time of firefighting agents, with a consequent reduction in costs and environmental and personal damage. The PRODINT system aims to provide a service of great value to society by taking advantage of the wide geographical coverage of Red Eléctrica de España’s electricity lines and the considerable height of the towers, as an ideal platform for monitoring the appearance of wild fires in large extensions of critical forested areas.
LIFE BooGI-BOP ³⁶	This initiative seeks to incorporate green spaces in urban and industrial environments into the network of ecological corridors. Although the <i>Biotransporte</i> project was halted in 2019 by the Innovation Committee and the Sustainability Committee, alternatives linked to this concept have been sought. In the <i>Biotransporte</i> project, a priori only the electricity lines were considered as biological corridors or islands of biodiversity, without stopping to consider the substations as spaces with great potential as biodiversity hotspots. The Life BooGI-BOP project gives the opportunity to showcase the potential that substations offer in terms of biodiversity. What is BooGI-BOP? It is a Life project with EU funding, implemented in the period 2018-2021 and its scope encompasses urban and/or semi-urban areas. The project, supported by seven European partners, promotes the design and management of business and industrial environments taking into account biodiversity and nature. The national partners are ECOACSA and the <i>Universidad Politécnica de Montes</i> .

³⁶ Aligned with the State Green Infrastructure Strategy and Ecological Connectivity and Restoration (EEIV) of the Ministry of Ecological Transition and the Demographic Challenge (MITECO).



	<p style="text-align: right;"><i>Continued from previous page</i></p> <p>Biodiversity-Oriented Design of Business Premises (BOP) is a practical approach that contributes to the protection of biodiversity - especially in densely populated regions. BOP provides solutions for shaping permanent or temporary habitats for local fauna and flora and contributes to the creation of biological corridors or green infrastructure. BOP enhances site functionality in a variety of ways and offers good opportunities to raise awareness and actively involve employees in improving biodiversity, enhancing the working environment and increasing the awareness of workers regarding the Company's values in this field and their pride of belonging.</p>
<p>Naturaleza en RED (<i>redefinition of the 'Biotransporte project'</i>)</p>	<p>In 2019, it was necessary to redefine the <i>Biotransporte</i> project. Different possibilities were studied and two were selected to give continuity to the project. One of them is to analyse the replication of the BooGI-BOP initiative to other spaces: substations and buildings with garden areas, also including spaces where hydroseeding is carried out. Another option is called '<i>Naturaleza en RED</i>', is oriented to the study of the biodiversity generated in the vicinity of/under the electricity lines as reservoirs of biodiversity in open spaces.</p>

7.2.6. Fire Prevention

In order to minimise the risk of fire associated with the presence of transmission lines, complying with strict rules regarding safety distances between flora and facilities is critical. Red Eléctrica ensures this compliance through the proper design of safety corridors and by carrying out actions of predictive and preventive maintenance, such as the annual inspection of all facilities and the periodic conducting of forestry work.

The Company applies best practices in the design and maintenance of safety corridors, respecting shrubs and small size/slow growing tree species, minimising the impact on protected species and without using chemical treatment methods.

Red Eléctrica executes numerous projects and works aimed at optimising the management and treatment of flora and minimising the risk of fire associated with its activities, having created a specific interdisciplinary working group to work on this matter.

In addition, noteworthy is the importance of the active and continuous collaboration of Red Eléctrica with the public administrations involved in forestry management. This cooperation is formalised through the signing of **collaboration agreements for the prevention and fight against forest fires**. In 2019, 6 of the 10 agreements in force have been renewed, with an additional three in the process of being renewed. The joint budget of all of these agreements represents an investment of more than 1,040,000 euros over a period of 4 years³⁷. The Company aims to establish this type of agreement with all 21 of the competent public administrations.

These collaboration agreements have resulted in the number of fires related to Red Eléctrica's facilities remaining extremely low.

³⁷ The contribution earmarked by REE per Agreement and Year stands at 20,000 euros.



Within the framework of these agreements, various relevant actions were carried out during 2019:

Territorial scope	Noteworthy projects in 2019 linked to collaboration agreements
Nationwide	The training programme for the State Security Forces and Corps continued in 2019. Twelve training sessions on forest fire prevention were organised in 14 provinces of 4 Autonomous Communities, with 622 people taking part.
Aragón	Training for 42 agents for the protection of nature in Aragón: 2 training courses were given in 'Verbal defence and persuasion'. The verbal defence and persuasion course provided students with self-control, skills to classify their audience and the situation and, through effective tools and strategies, to be able to manage themselves better to achieve professional objectives.
Andalusia	Awareness raising campaign 2018-2019 'Andalusia without fires'. Production of infomercials in video and audio formats for the general public for their broadcasting via television, radio, means of transport that have an audio-visual information service, at events (courses, conferences, symposia...) related to forest fires, and educational activities aimed at school children. The theme is information and awareness about the problem of forest fires, their effects on the natural environment as well as on material assets and people, and the measures to be taken individually and collectively to prevent them from occurring and to minimise their impacts.
Asturias	Selective clearing of scrubland respecting the areas surrounding the bases of trees to be protected in order to help in the recovery of pastureland in 41.82 ha of the Sierra de Tineo and Grullomayor highlands in Asturias.
Castilla-La Mancha	No relevant projects in 2019.
Castilla y León	<p>Citizen awareness campaign 'Yo me enchufo a la prevención' (I am plugged into prevention).</p> <p>The public awareness campaign '<i>I am plugged into the prevention of forest fires</i>' has been launched with the aim of making the population aware of the need for their involvement in prevention. Promoted by CDF (León Centre for Fire Defence). As part of the '<i>I am plugged into the prevention of forest fires</i>' campaign, the CDF's environmental education programme was developed once again, with the participation of 2,000 schoolchildren from 30 schools in Castilla y León between 4th year of primary school and 2nd year of secondary school. The programme consists of a visit to the CDF, with free transport for the participating group, and a subsequent activity at the school itself. In addition, as support material for the environmental education programme, during 2019, we prepared and published school material for these visits.</p> <p>Conference session on forest fires and electricity lines for environmental agents of Castilla y León</p> <p>The technical conference sessions addressed issues related to Red Eléctrica and how to act in the event of a possible fire in the vicinity of the lines. In addition, the conference addressed essential issues to improve coordination in the fighting of forest fires, such as communications and the practical application of the Emergency Management System for Forest Fires. These training sessions began in 2018 with 324 agents, in 2019 there were 9 conferences attended by 270 agents and in 2020 it is planned to continue with a similar number of sessions and participants, thus providing coverage to all environmental agents in the Community over a period of 3 years.</p>



	<p style="text-align: right;"><i>Continued from previous page</i></p> <p>Training course for 50 environmental agents from Castilla y León</p> <p>Refresher course on forest fires for environmental agents for 50 participants, in 4 sessions of 10 hours each. This course is part of the general programme of professional training and certification in the fight against forest fires in Castilla y León, within the training itinerary of the group of environmental agents. The general objective of the course is to review the working procedures of an environmental agent in the extinction of forest fires that involve a complex organisation of resources.</p>
Extremadura	<p>Controlled fire training course.</p> <p>Resources and activities to raise awareness on prevention and fight against forest fires in Urban Forest Interface areas. Design, planning, development, provision and supply of resources and awareness activities in forest fire prevention and control at the Urban Forest Interface areas.</p>
Community of Valencia	<p>Preparation of the audio-visual materials for the 'Clips to save the world' project launched by the Ministry of Agriculture, Environment, Climate Change and Rural Development, Climate Emergency and Ecological Transition of the Regional Government of Valencia.</p>
Balearic Islands	No relevant projects in 2019.
Canary Islands	<p>Training in forest fire fighting for 126 technical experts, agents, managers of the island coordination centre (CECOPIN), foremen, operators and forestry agents (La Palma).</p> <p>This training activity covers how fire behaves, meteorology, safety procedures and standards, the emergency management system, the Campbell predictive system, stress management, teamwork, leadership, communications in emergency situations and a practical-demonstrative part; deployment with safety and change of conditions and self-protection manoeuvres.</p>
Navarra	No relevant projects in 2019.
Basque Country	<p>Training geared towards fire safety, extinction techniques, investigation and the development of professional skills regarding forest fires.</p> <p>In the training, 134 experts, forestry agents, foremen and operators from the Department of Sustainability and Natural Environment of the Provincial Council of Vizcaya participated. The assistants acquired skills regarding human factors and safety, evaluation and forecasting of fire behaviour, initial attack strategies and practical examples of decision making.</p> <p>Preventive clearing in the highlands of Vizcaya</p> <p>Clearance works in areas of forest fire risk, scrublands, the type of shrub to be cleared were mainly thistles in particular common gorse (<i>Ulex ssps.</i>) and to a lesser extent dried out heath (<i>Erica ssps.</i>) with a high density and an average height of shrub of 0.8 m.</p>



- **Offsetting measures for tree felling works as a result of construction works for new facilities**

In 2018, Red Eléctrica set itself the challenge of compensating for the loss of native woodland affected by the construction of new transmission grid facilities, to this end, it first carries out an evaluation of the areas of native woodland affected.

In 2019, a collaboration agreement was signed for the conservation of biodiversity through the reforestation and restoration of 53 hectares of habitat degraded by forest fires in the municipal area of Las Torrecillas-Puntal de Navarrete and the Llanos de Gaetano recreational area in the municipal area of Altura (Castellón), in order to offset the aforementioned loss of native woodland.

In the place selected by the Regional Government of Valencia for the execution of the project, approximately 200,000 euros will be invested in the replanting of native vegetation. The area was affected by a forest fire in 2012 and the planting of trees will help restore the landscape and the habitat for wildlife and will help protect the soil against erosion, the loss organic matter and nutrients.

The collaboration agreement signed, which will last two years, entails the carrying out of dissemination and environmental education activities to raise awareness among the population about the importance of protecting natural areas.

- **Management and treatment of vegetation at the base of the towers. Use of plant debris (pine bark) as a natural herbicide and the collection of this material helps to minimise the risk of forest fires.**

The work was carried out during 2018 on the towers of the 400 kV Arcos de la Frontera-Pinar line (the 'La Almoraima' estate in the Alcornocales Natural Park). In 2019, the evolution of the treated towers was monitored to confirm that the measure is adequate and to assess the replication of this practice on other lines. In view of the results, the monitoring has been extended to 2020.



7.3. Saving of Resources: Water and Paper

Water consumption³⁸

	2017	2018	2019
Head Office (m ³)	8,064	10,479	10,196
Head Office (m ³ /employee) ³⁹	8.47	11.51	10.54
Total work centres ⁴⁰ (m ³)	27,627	22,586	20,347

Withdrawal by source (%)	2017	2018	2019
Rainwater collection tanks ⁴¹	0	0	0
Cisterns	3.14	2.92	2.90
Wells	33.74	24.55	17.60
Municipal water mains	63.12	72.55	79.50

Paper consumption (office paper)

	2017	2018	2019
kg	24,190 ⁴²	20,597	12,195
kg/employee ⁴³	11.62	10.10	5.70

The table below shows the evolution of paper consumption in publications in the period 2017-2019.

	2017	2018	2019
kg	16,327	6,321	7,348
% FSC ⁴⁴	95.20	100.00	100.00
% FSC 100% Recycled	28.40	65.19	46.00
% FSC 60% Recycled	8.70	0	5.00
% FSC Mixed	62.90	34.81	49.00
% Ecological paper used in publications	0	0	0

³⁸ 98% of water is consumed in areas at high risk of water stress (high or extremely high-risk areas have been considered for the 'Baseline Water Stress' indicator published in WRI's 'Aqueduct Water Risk Atlas' tool).

³⁹ Only the Head Office buildings in La Moraleja and the staff that consume water in it are considered (employees, interns and collaborators: a total of 967 people).

⁴⁰ The data provided has a coverage of 83%, in terms of personnel (taking into account all personnel that work in the different work centres in Spain: employees of the Group, interns, employees from temporary staffing agencies and collaborators). The data is not available for some centres, mainly those that are not owned by the Company (rented).

⁴¹ In some centres there are rainwater collection tanks for sanitary use, fire prevention and irrigation. Collection tanks do not have mechanisms to account for stored water, so the percentage of rainwater use cannot be calculated.

⁴² In 2017, the printer service provider was not able to provide the data regarding printing on 1 or 2 sides, reporting only cumulative data since installing the printers in 2014, and it was impossible to obtain the data for 2017. For this reason, it has been estimated that in 2017 the percentage of double-sided printing was same as in 2016, 72%.

⁴³ Includes REE employees as well as interns, employees from temporary staffing agencies and collaborators: 2,164 people.

⁴⁴ Ecological paper certified to Forest Stewardship Council standards.



7.4. Socio-Economic Environment

7.4.1. Protection of Archaeological and Ethnological Heritage

The protection of archaeological and ethnological heritage is an important factor in the design and construction of Red Eléctrica facilities.

Before carrying out any earthworks, the Company carries out an archaeological survey of the land/terrain, the intensity and scope of which depend on the probability that there is material of interest in the area. According to the results, the need for the continuous presence of an archaeologist during the works is determined and, if necessary, the preventive measures to be applied during the works are defined. These measures mainly consist of avoiding or protecting certain elements of archaeological and ethnological heritage, although on some occasions cataloguing, excavation or even restoration work is carried out.

In 2019, archaeological supervision was necessary in the construction of 31 new lines, or for the adaptation of existing lines (71% of the adaptations were carried out with the continuous presence of an archaeologist during the earthworks phase, in the entirety of or in part of the route). Archaeological supervision was necessary in the construction of 8 substations or for enlargement works of existing substations (63% were carried out with the continuous presence of an archaeologist during the earthworks). In addition, two archaeological surveys and one paleontological survey were carried out.

Some special works were carried out after the discovery of remains and material of high ethnological and cultural value, among which the following are noteworthy:

Protection of archaeological-ethnological heritage	
Incoming/outgoing feeder lines of the 400 kV Soto de Ribera substation	<p>Two preventive measures were carried out:</p> <ul style="list-style-type: none"> • Access via the road at the foot of Castro de Pico Castiellu was avoided. • No cobbled or old sections of the Camino Real (an ancient road) to Oviedo via Carrera and Soto de Ribera were used as access routes. <p>As for the towers in archaeological sites of lithic materials on the surface, initial archaeological probing works were carried out that showed the stratigraphy and helped to orientate the excavation works. Afterwards, pickling (a process to remove impurities) was carried out with the removal of the humic layer.</p>
Incoming/outgoing feeder lines of the Son Moix substation on the 220kV S.Reus-Valldurgent line.	<p>Restoration of the access road to the towers, where there were old cartwheel tracks/ruts. In 2019, work was carried out to restore the road and the tracks were analysed and catalogued and the local administration was informed, and they will proceed to conduct an inventory and protect the roads.</p> <ul style="list-style-type: none"> • Before the start of the work, the road was covered with geotextile material and earth. Once the work was completed, the earth and the geotextile material were removed, leaving the original road with the old cartwheel tracks both intact and visible.

On the other hand, the Company began to work on the **ArqueoRED** project five years ago, whose objective is to have the information regarding catalogued cultural heritage digitally mapped for the entire national territory. The consultation of this information prior to the execution of works in the facilities enables the necessary measures to be defined in each case and thus avoid potential impacts. To date, we have proceeded to compile all available documented information available in a digital format and which has been contrasted in the field.

It should be noted that several unique actions were carried out following the discovery of certain remains and materials of archaeological and ethnographic value during the execution of its activities, such as the cataloguing of ichnites (dinosaur footprints) found between the municipalities of Valtajeros and Fuentes de Magaña (Soria). These findings also made it necessary to modify the project for the execution of the Magaña substation.



In addition, Red Eléctrica actively collaborates with the public administration in the conservation of heritage by developing cultural projects in the areas surrounding its facilities. An example of this is the creation of and collaboration on a cultural trail in the La Vallesa de Mandor agricultural area, within the Turia Natural Park, where different military structures dating back to the Spanish Civil War can be found and that are catalogued as an archaeological site under the Cultural Heritage Law of Valencia.

7.4.2. Electric and Magnetic Fields (EMFs)

Thanks to the criteria applied by Red Eléctrica in the design of its facilities, the levels of electric and magnetic fields (EMFs) stay below those recommended by the Council of the European Union (The Official Journal of the European Communities 1999/519/EC: establishes exposure limit values for the general public in sites where they may remain for a period of time at 5 kV/m for electric fields and 100µT for magnetic fields). The main criteria applied are the following:

- Construction of double circuits and transposition of phases in lines.
- Increasing the height of towers, thus increasing the safety distances.
- Establishing the minimum distance of electricity lines from population nuclei and isolated houses

To verify compliance with the recommendation of the Council of the European Union, Red Eléctrica has a tool that uses specific line parameters to calculate accurately the maximum EMF levels that said facilities could generate.

Electromagnetic field measurements were conducted using predictive software for the following infrastructure at the request of the local administration and other stakeholders:

- *220 kV Eliana -Beniferri circuit.*

On the other hand, and also at the request of stakeholders, in-situ measurements of the levels of electric and magnetic fields have been carried out in:

- *400kV La Cereal-Segovia line at the request of a resident of the town of Guadarrama, to check the levels of electric and magnetic fields generated by the line that crosses the Los Serranillos residential area. The span involved is between towers 77 and 78 of said line.*
- *220 kV Tordesillas-Otero and Las Arroyadas - Tordesillas lines at the request of the Tordesillas local council, to check the levels of electric and magnetic fields on the line that passes extremely close to the Alejandría Secondary School. The span involved is between towers 4 and 5 of said line.*
- *220 Sagunto-Val Duxo line for the span between towers 124 and 125 in the town of Faura at the request of the town council. In this case, as an official report was required, the survey was subcontracted to a certified company.*
- *400kV Morata-Moraleja-Villaviciosa line for the span between towers 125 and 126 in the town of Arroyomolinos, Madrid and the measurements taken were at the request of 2 different residents of the same residential area.*

The results of both the predictive calculations and the measurements all the values being in all cases below those recommended by the European Union.



During 2019, there were no incidents registered due to non-compliance with the regulations in this matter. Nonetheless, aware that electromagnetic fields are an aspect that generates significant interest in the territories where electricity facilities are located, the Company gives special relevance to this point in the informative sessions regarding future projects, as has been the case with those carried out in 2019 in the municipalities of Cantabria where the future 220 kV Cacedo-Puente de San Miguel line is currently in the permitting process stage.

On the other hand, Red Eléctrica considers it of utmost importance to keep abreast of all new developments regarding electromagnetic fields, participating in different working groups and actively supporting research projects in this field. In this regard, a conference was held with the Sub-Directorate General of Environmental Assessment of MITECO to agree on the state-of-the-art technology related to this environmental aspect of electricity transmission facilities.

In addition, contact has been made with various experts at national and international level for the creation of a group of experts on electromagnetic fields spearheaded by Red Eléctrica and in collaboration with other electric utility companies. The aim is to advise environmental bodies on the design of environmental and social assessment guidelines for new projects.

<http://www.ree.es/en/sustainability/the-natural-environment/electric-and-magnetic-fields>

7.4.3. Noise Pollution

On occasions, electricity substations can be an annoyance for the neighbours, due to the noise generated by some of its elements. Red Eléctrica works on the implementation of the most effective measures for mitigating noise pollution.

During 2019, an analysis was conducted on the noise produced by the 134 substations that have power transformers on site. This has been based on direct measurements taken at 18 substations and includes the use of prediction software, fed with data from the ACURED innovation project (2016-2018). Thanks to this study, it has been possible to identify and prioritise some actions to be carried out in the coming years, such as making adjustments to some power transformers or installing an acoustic screen at the Arkale substation in Guipúzcoa, planned for 2020.

On the other hand, noise measurements were carried out at the request of some public administrations or individuals and the results were within the legal limits:

- *400 kV Sentmenat-Bescanó line*: complaint about noise from the line. The measurement gives values below the legal limits established by current legislation.
- *400/220 kV Solórzano substation*: measurements were taken as a result of the facility's own Environmental Monitoring Plan and at the request of the local council, resulting in values below the legal limits established by current legislation. However, in view of the noise disturbance reported by the surrounding population, adjustments were made to the transformer which managed to reduce its sound power levels by significantly reducing the sound pressure in the environment.

In 2019, there were no incidents derived from non-compliance with regulations on noise pollution.



7.5. Circular Economy

As part of the path towards a sustainable energy model, the Company is committed to the integration of the circular economy in the development of its activities. In this regard, since 2018, Red Eléctrica has been a member of the Circular Economy Pact led by the Ministry of Ecological Transition and the Demographic Challenge, whose objective is to involve the main economic and social agents in Spain in the transition towards a new economic model in which products, materials and resources are kept in the economy for as long as possible and in which the generation of waste is reduced to a minimum. As a signatory of the Pact, the Company has committed itself to promoting this transition through the application of a set of guiding rules aimed at implementing changes in the organisation that contribute to promoting responsible forms of consumption.

The Company's commitment in this scope has been materialised in 2019 with the preparation of a Roadmap that will enable Red Eléctrica to become a leading company in circular economy by 2030, this being one of the 11 Sustainability Goals that the Company has set itself for this horizon.

This Circular Economy Roadmap sets out the goals to be achieved and the various courses of action to be implemented to progress towards the fulfilment of said goals. The actions are focused on the enhancement of different dimensions: materials, zero waste, soil, water, energy and a final cross-cutting dimension in which the aspects that affect all the variables as a whole are included⁴⁵.

The most relevant dimensions are highlighted below:

- **MATERIALS**

In order to reduce the consumption of raw materials and promote the use of recycled, recyclable or reusable products, it is necessary to make progress on issues related to eco-friendly design and the consideration of environmental impacts throughout the life cycle of equipment and materials. This progress will only be possible through advances in the relationship with suppliers, collaboration with other key actors and by promoting innovation and technological development

Objective of the MATERIALS Roadmap

- Creation of a circular supply network
- Identification of the environmental impacts of equipment and materials from their point of origin (equipment and materials passport)
- Integration of circularity criteria in procurement tenders for equipment
- 20% of tenders for equipment with clauses involving suppliers in maintenance and end-of-life management of the equipment
- 0% single-use plastics
- 100% eco-friendly packaging, recycled, recyclable or reusable packaging in the supply of equipment and materials
- Sustainable transformers (use of vegetable esters instead of mineral oils)
- Innovation and technological development (eco-friendly designed equipment and materials)

⁴⁵ It is worth mentioning that everything related to energy is encompassed in the framework of the Climate Change Action Plan.



- ZERO WASTE

The nature of the waste generating activities in Red Eléctrica makes it extremely difficult to predict the evolution of the quantities produced as they are closely linked to the number and type of construction and maintenance actions carried out each year. For example, the activity of renewing and adapting facilities generates a large amount of waste, but this cannot be limited, as this activity is linked to reducing environmental risks or increasing the safety of the system or facilities. However, the Company is working on finding innovative solutions that make it possible to reduce the quantity and hazardousness of the waste derived from its activities and on searching for the most sustainable alternatives in terms of their life cycle.

Objective of the ZERO WASTE Roadmap:

- 0% waste to landfill
- 100 % SF6 waste reduction
- 100% reduction of waste from contaminated land (treatment of 100% of the soil affected by accidents)

7.5.1. Waste Management in 2019

Regarding the generation of waste, most of these do not follow a fixed pattern of behaviour, which is largely dependent on the number of construction and maintenance activities carried out throughout the year. Therefore, the interpretation of the data obtained and the comparison with previous years presents difficulties. For the same reason it is very difficult to predict the evolution of the quantities produced and to establish quantitative reduction targets. For example, the activity of renovation and adaptation of facilities generates a large amount of waste, but it cannot be limited as this activity is often linked to the reduction of environmental risks.

In general terms, the amount of waste generated in 2019 decreased by 3,291.9 tonnes compared to 2018. The volume of non-hazardous waste fell by approximately 802.1 tonnes (52%) compared to the previous year, and the volume of hazardous waste also fell by approximately 2,489.7 tonnes (81%).

Detailed below is the data regarding waste and its evolution over the last three years:

Non-hazardous waste ⁴⁶	2017	2018	2019
Total (t)	1,850.2	1,521.1	718.6

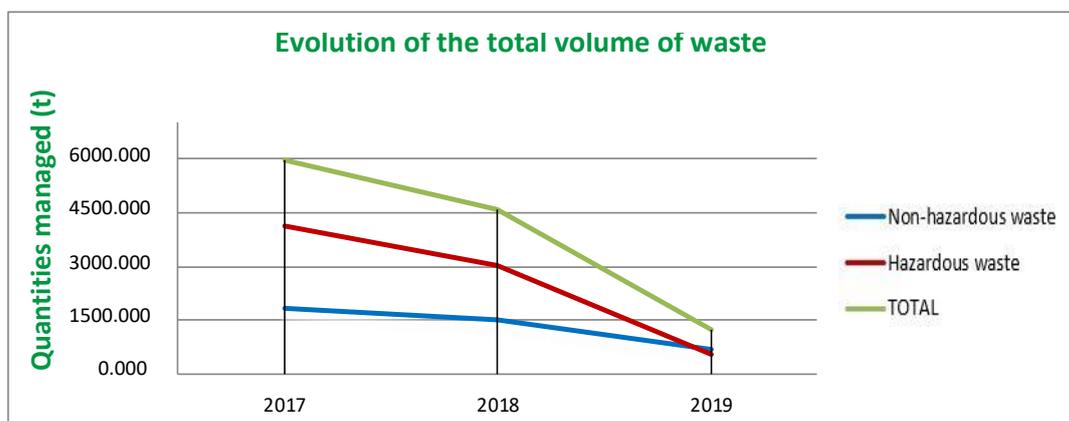
Hazardous waste	2017	2018	2019
Total (t)	4,102.1	3,036.8	547.1

Total waste Non-hazardous + hazardous	2017	2018	2019
Total (t)	5,952.3	4,557.9	1,265.7

⁴⁶ Vegetable waste is not included as it cannot be quantified: most of it is incorporated into the land, or delivered back to the land-owners, as this is the most appropriate form of management. Metal waste has been included as of 2017.



The drop is due to a decrease in renovation and improvement projects of facilities. In general, there was a reduction in all types of waste generated in this activity (equipment with oil, oil, water-oil mixture and inert materials). The reduction in hydrocarbon-contaminated soils is due to a decrease in the number of accidents and regarding septic tank sludge, the reduction is due to a change in its management, the majority of the septic tanks are air-tight and the content of the tanks meets the parameters to be considered as wastewater, and can, therefore, be emptied into a treatment plant without being considered waste.



- Total amounts (tonnes) managed in 2019 by type of management

Waste management method (%)⁴⁷

	Non-hazardous (%)	Hazardous (%)
Reuse	4.23	0.00
Recycling, Composting, Anaerobic Digestion	74.41	53.68
Regeneration	0.00	0.15
Energy recovery (Waste-to-Energy)	0.09	0.00
Elimination (by any method)	21.28	46.17

The Annex of this report provides more specific data on waste management and its final destination over the last three years.

⁴⁷ The management of the waste corresponds to that contained in the legal documentation of the same. The amount of waste destined for recycling was **74.6%** (included in the category are: reuse, recycling, composting, anaerobic digestion and regeneration).



7.5.2. Zero Waste to Landfill Sites

The zero-waste models are an initiative encompassed within the EU targets for 2020 to make our economy evermore circular. The objective is that waste that cannot be reduced, reused, recycled or monetarily quantified, must be transformed into raw materials that can be used for new products in an economically and environmentally profitable way. To find alternatives and technological solutions that prevent waste from ending up in landfill sites, an in-depth knowledge of its nature and the traceability of how it was generated is required.

In 2018, Red Eléctrica began to design zero waste to landfill models for its facilities. In 2019, a model was developed for the Central Region (as defined by the Company), in which there are 77 waste production centres associated with the maintenance of the facilities. Its implementation and development are planned for 2020 for the rest of the Company's facilities, including buildings and substations.

7.5.3. Project for Selling Obsolete Power Transformers

Regarding the Company's efforts to minimise waste, this project is noteworthy as it is based on a reverse logistics approach that strictly follows the **3R Principle: Reduce, Reuse and Recycle**.

It consists of the resale of materials considered inappropriate for their reuse, or their waste-to-energy recovery, through an auction system. The project allows the extension of the useful life of some materials and the total or partial recovery of their components or materials.

Thanks to this project, the incorporation of these obsolete power transformers in the value chain has been achieved as new resources or raw materials, so that none of the waste associated with this project has become landfill material. This has represented not only a reduction in costs, but also a financial return.

7.5.4. Sustainable Management of Soil/Earth affected by Oil and Fuel Spills

The final objective of the project is to have new specific treatment(s) for the soil affected by those polluting substances most commonly found in REE's facilities, which will initially allow the soil to be treated in situ on or, if this is not possible, 'on site' (excavated and treated on the site itself) and which will replace the techniques used to date with a greater degree of sustainability from an environmental and economic point of view. In this way, the Company is provided with viable alternatives to excavation and dumping the soil into landfills in order to be able to address and mitigate more quickly and effectively the environmental damage to soil and groundwater that can be caused by leaks and spills of dielectric oils.

The priority technique to be used will be bioremediation, a green technology that not only detoxifies the soil, but also helps to restore its ecological properties. The idea is to establish a microcosm system (microorganisms) with a specific ability to work on and arrest the problems caused by oil spills. It will also deep dive into other effective decontamination techniques (Starx, bio and ecopilas, Star in aquifers, thermal treatment, etc.) that would also allow an on-site remediation of the impact on the soil, thus reducing any possible impact on the facility's operation and use.



Within the scope of the project, the intention is also to identify the bacterial cultures whose specific degrading capacity is optimal for the types of oils used by REE in its equipment, in order for it to be used should oil spills occur in the future.

During 2018, a first phase of the project was conducted, in which different studies and tests were carried out on two of the main types of oil used in the Company's facilities and this has allowed the following conclusions to be drawn:

- Microbial biodegradation (based on the limited periods tested) can be considered as a potentially viable technique for the treatment of soil and groundwater contaminated by the oils tested. In any case, it is necessary to carry out new test and trials of longer duration that confirm the results obtained in this study in order to confirm its true practical effectiveness and obtain more specific and enriched biodegradable cultures.
- The tests with biodegradable surfactants have produced good results and their ability to significantly emulsify both oils (20-30%) has been demonstrated, although in tests combined with inoculate microbial remediation technology, toxicity was detected.
- Tests with oxidants produced results where there was a moderate but significant degradation of one of the oils.

During 2019, an agreement was negotiated to continue with a second phase of the project which is to be implemented in 2020.



7.6. Prevention of Contamination of Soil and/or Groundwater

Red Eléctrica includes among its environmental risks the risk of contamination of soil or groundwater from leaks or spills of oils, fuels and hazardous substances.

Red Eléctrica has established numerous preventive and corrective measures aimed at preventing the contamination of soil or groundwater due to leaks or spills of oils, fuels and hazardous substances.

On the one hand, the proper maintenance of equipment is carried out and strict working procedures that reduce the number of incidents are established. On the other hand, it has adequate containment systems as is the case of power transformers containing large amounts of oil and response protocols when faced with possible events that allow a reduction in the severity of the consequences should accidents occur. For this reason, numerous preventive and corrective measures have been established in order to minimise the risks of this type of accident.

In addition, rigorous procedures have been established for the characterisation of the subsoil in new substation locations, to eliminate risks related to incidents that occurred prior to the activity of Red Eléctrica.

The activity of Red Eléctrica within the context of Royal Decree 9/2005 of 14 January is set out in Annex I as 'Potentially soil contaminating activity', encompassed within the NCEA (National Classification of Economic Activities) CNAE-2009: 35.12 and 35.13 with the following scope of activity: **'Electricity substations and power transformers or reactors'**.

In 2019, the following substations had specific soil characterisations carried out:

Characterisation of substations 2019	
La Serna	Itxaso
Cacicedo	Tarragona
Caparacena	Baza
Portichuelos	Bienvenida
Sant Just	Gamarra
El Palmar de la Gomera	---

None of the pollutant values registered in these substations posed an unacceptable risk to health.

- **Submission of preliminary soil reports (PSR/SR) and request for information/actions based on said reports**

Since 2005, in accordance with the provisions set out in the legislation, preliminary soil reports (PSRs) in the case of new substations and mandatory periodic updates (situation reports or SRs) have been presented with the frequency established by the various Autonomous Communities that cover different cases for which they are necessary. During 2019, twenty-eight PSRs/SRs were presented.



- Actions related to soil/groundwater as a result of accidents in previous years

- Environmental recovery after the Cala'n Bosch environmental accident

In January 2016, an incident in the Menorca-Majorca connection on the stretch of land in Menorca produced a leak through a pore in the lead shield of the cable sheath. REE followed the procedure for the voluntary environmental recovery of soil and groundwater. The extent of the impact (according to the latest estimated official data) is between 1,200-1,600 m² of soil, while the area of groundwater affected is estimated at about 2,200-2,600 m². The fault is located in an urban area near the sea where residential and tourist activities usually take place.

In April 2018, the Recovery Plan for Cala'n Bosch was presented to the General Directorate for Environmental Education, Environmental Quality and Waste. Various follow-up meetings were held with the Public Administration after the Plan was presented. Until now, no specific date has been given for obtaining approval for the Plan.

During 2019, the application of emergency, short-term and medium-term recovery measures for the extraction of the spilled oil that had to be stopped in June 2018 has been resumed. Furthermore, pilot tests for the recovery of the treated soil corresponding to the Plan for the recovery of the site have begun.

Since it began operation in 2016, the remedial system put in place (treatment plant and the use of skimmers) has enabled the extraction of a total of 36,596 litres of free phase oil. The pumping of groundwater and free phase, in addition to the extraction process for the separation and storage of free phase oil, entails the treatment of the water for its subsequent discharge (ensuring a discharge with no more than 600 µg/l (0.6 ppm)). A total of 20,301 m³ of groundwater has been treated to date.

Periodic characterisations and monitoring of groundwater have been carried out in order to control the possible evolution of the 'impact plume'. According to the sampling studies performed, the plume values remain stable without displacement or significant variation in the levels of free phase oil though they are showing a general downward trend.

This Plan counts on a project management team that is specialised in this field and that provides the necessary technical support for carrying out the pre-tests and will continue providing support in the post-tests once the process of implementing the recovery Plan begins.

- Other noteworthy related actions

- La Plana substation (2017 accident): soil characterisation and remediation has been carried out.
- Santa Llogaia converter station: recovery according to the excavation plan approved by the Catalonia Waste Agency.
- Lastras substation: affected soil was detected around the reserve transformer plinth and the said soil was removed.
- Magallón substation (oil spillage in REA1 zone, affecting an area of 500 m² around it, albeit superficially): affected soil was removed, and a second removal will be carried out in 2020.
- SS Reyes terminal substation (breakage of terminal phase 0 CT6 affecting 70 m² around it, albeit superficially): the affected soil was removed.
- Rubí substation (accidental spillage of dielectric oil from a capacitive voltage transformer, affecting 6 m²): the affected soil was removed.
- Piérola substation (derived from the risk project): the Public Administration requested a detailed characterisation study that began in December 2019.
- Senmenat substation (derived from the risk project): the Public Administration has requested a detailed characterisation study which began in December 2019.
- Grijota substation: several groundwater measurement works were carried out and these will continue in 2020 with a monitoring plan.



- Other noteworthy actions in this field

- Environmental risk assessment and identification of environmental liabilities in electricity substations:

The project enabled greater knowledge to be obtained with respect to the internal risk on soil and ground-water (surface, subsoil and marine) of the portfolio of substations. Also, based on the risk obtained, a hierarchy ('ranking') was established according to the estimated severity of the environmental liabilities that gave way to the drafting of a 'risk map' of the facilities with all the information related to each site. In parallel, the external risk posed to the installation by the activities carried out by third parties in areas adjacent to the substations was also assessed.

Based on the results of the model, a set of electricity substations, those with the highest risk, was selected, and a plan of specific actions was drafted for each site.

During 2019, specific actions (of varying priority) were began and executed in a first batch of substations with the following results:

- Vic: the results obtained were submitted to the local administration and a response was obtained in the form of a control and monitoring plan.
- Valldurgent: the results showed a slight effect on soils with no impact on groundwater.
- Gueñes: the results showed a slight effect on soils with no impact on groundwater and the results of the Quantitative Risk Analysis (QRA) indicated that there was no unacceptable risk for people.
- Mequinenza: The report was submitted to the local administration and was considered acceptable without indicating the need for further action.
- Benejama: a detailed study of the ground area where a slight impact was previously detected was voluntarily carried out and was characterised in depth. The results of the Quantitative Risk Analysis (QRA) indicate that there was no unacceptable risk for people.
- Cala Mesquida: awaiting final results.
- Vitoria: awaiting final results.
- Don Rodrigo: no impacts detected.
- Lomba: awaiting final results.

The progressive implementation of the actions is expected to continue in five substations in 2020.

Once the measures defined have been carried out, the environmental risk values obtained at the substations will be updated, incorporating all those actions, measures and results obtained into the model, updating the actual state of the facilities after the renovations. Furthermore, the new substations commissioned and not included in the initial evaluation will be added.

- Environmental risk assessment of Oil-Filled (OF) cables

In 2016 a risk assessment study was carried out in order to prioritise the cable sections with the greatest risk from an environmental perspective and, on the other hand, a technical and economic feasibility study regarding future actions and management solutions linked to the cables.

The objective of the project was to evaluate the level of environmental risk associated with the various oil-filled cable circuits in operation (130 km distributed throughout different areas of Spain whether it be a land, marine and waterway section), prioritising these sections of line according to the level of environmental risk and defining an action plan for the final management of these facilities. Based on the results obtained, a prioritisation of the cable sections into classes was generated, obtaining cost estimates of environmental liabilities. In addition, risk maps have been prepared that represent the classification of each facility in terms of its potential level of environmental risk.

Based on the results of the classification of the potential environmental liabilities, a specific Action Plan was prepared for each oil-filled (OF) circuit that establishes the order of priority of the actions associated with the deactivation and/or replacement of the cables, and the options available.



A working group has been established that will progressively define and agree the different actions and solutions with respect to the OF cables that are property of the Company, with the ultimate goal of reducing the risk associated with them.

7.7. Stakeholders

The main objective of the Red Eléctrica is to establish a lasting relationship, based on trust, with its stakeholders. This includes all those stakeholder groups impacted by the Company's services or activities, and those groups whose opinions and decisions influence the Company's financial results or may have an impact on its reputation.

For the third consecutive year, Red Eléctrica has reached the highest score (100 points out of 100) for its excellent performance and its commitment to its stakeholders in the evaluation that determines which companies form part of the Dow Jones Sustainability Index.

Red Eléctrica's stakeholder management model incorporates the requirements set out in the rules and standards of reference in the field such as the AA1000, IQNet SR10, ISO26000 or the Global Reporting Initiative. This model ensures that relevant economic, social and **environmental** aspects, associated with Red Eléctrica's activities and services, that may have an impact on its stakeholders are adequately managed, thereby avoiding the risk of not promptly identifying issues that may affect the Company's relationship with its stakeholders. This model encompasses the following phases:

- The stakeholder **identification and segmentation** phase which is carried out by analysing the inter-relationships of the processes and activities of the Company with its socioeconomic environment.
- The **prioritisation** phase performed by analysing the influence that each stakeholder group has on the achievement of the Company's strategic objectives and the impact that the Company's activities have on each stakeholder group being considered.
- The **relationship framework** helps categorise the type of relationship with each stakeholder group and defines the most appropriate relationship channels.





Additionally, among the actions carried out in 2019 within the framework of the stakeholder management model, two main projects can be highlighted:

- A systematisation model for managing stakeholders engaged in transmission grid investment projects. This project, designed and launched between 2017 and 2018 to improve efficiency in the implementation of its infrastructure in the territory, has been continued through two supplementary projects:
 - Development of sociological tools, in order to make the model functional and adaptable to the specific nature of the territories, and its application to an objective for comprehensive stakeholder management and the communication of two particular transmission grid projects: the Spanish Peninsula-Ceuta link and the Transmanchego Axis.
 - Development of the technological and digital support tools necessary to respond to the requirements of the stakeholder management model designed, in order to share knowledge so as to anticipate needs and solutions that help make the compatibility of transmission grids viable within the territory.
- **Identification of stakeholders and action plan in the transmission grid planning process.** Red Eléctrica is committed to increasing transparency and providing information to all agents involved in the transmission grid planning process and to society in general. For this reason, the Company has created a working group to improve the management of stakeholders involved in the drafting process of the new transmission grid planning, promoting bidirectional communication and the disclosure of information to third parties.

7.7.1. Management of enquiries, claims and grievances

The *Digame* service has guaranteed, since 2008, the professional management of all external stakeholder enquiries (claims, grievances and requests for information), by making various communication channels available (phone, e-mail and online web form). This service is staffed by personnel from the Juan XXIII Roncalli Foundation, an organisation that facilitates the professional integration of people with some type of disability.

We monitor and attend to all enquiries and grievances/claims of an environmental nature which are sent to us by interested parties. All enquiries filed are classified by their nature (includes complaints, queries, suggestions, requests for information and recognition) or grievances.

In 2019, a total of **78** enquiries regarding environmental issues were received, **25** of them were classified as grievances.

The areas of concern which have led our stakeholders to contact Red Eléctrica in the last three years are broken down in the table shown on the following page. Noteworthy were the enquiries received by the different organisational units as a result of felling and pruning works of flora and the grievances thereto.



	Evolution of enquiries ⁴⁸			Evolution of grievances ⁴⁹		
	2017	2018	2019	2017	2018	2019
Birdlife	6	3	4	0	0	0
Electromagnetic fields	12	15	17	2	0	0
Consumption/Energy efficiency	0	0	0	0	0	0
Environmental costs	0	0	0	0	0	0
Emissions/Climate change	5	0	0	0	0	0
Impact on the landscape	1	2	2	0	0	0
Facilities/Infrastructure	3	1	0	1	0	0
General environmental information	6	0	3	0	0	0
Waste	2	2	3	0	1	1
Noise	8	8	9	1	0	2
Environmental management system	3	0	3	0	0	0
Flora/Vegetation	30	19	37	12	8	22
Total	76	50	78	16	9	25

7.7.2. Supply Chain

Red Eléctrica considers its suppliers as an essential link in the execution of their activities and, therefore, its commitment to the environment extends to each and every one of them.

Red Eléctrica requires all those suppliers whose activity has a greater environmental impact (providers of services that can generate direct impacts on the environment, and equipment suppliers whose manufacturing process is resource-intensive) to have an environmental management system that has been documented or certified by a third party; 100% of the suppliers are certified. In addition to the total number of suppliers registered with REPRO (Repro is the energy sector pre-qualification system used in South America and Southern Europe), 73% have a management system certified by a third party (ISO 14001 or EMAS).

With the aim of improving the environmental performance of the supply chain, Red Eléctrica has identified and prioritised the risks and impacts of an environmental nature of the supply chain, which has allowed the Company to establish controls to minimise them. These were identified within the scope of the project to identify the environmental impacts associated with each of the services contracted, and in the definition of the specific requirements that are requested from suppliers based on the type and relevance of said impacts (potential and actual).

There is therefore a matrix of impacts that covers most of the suppliers' activity and, therefore, the main risks associated. This matrix allows the Company to assess the probability of occurrence and the magnitude for each of the 20 types of impacts identified (nine of them of an environmental nature).

All the sustainability requirements have been identified and a matrix of impacts was drafted for the supply of **equipment and/or materials**, and another matrix for the provision of **services and construction works**.

⁴⁸ The result includes all the requests received (enquiry + claim).

⁴⁹ The cases that may involve sanctions are detailed in another section of this Environmental Statement. Includes only grievances classified as applicable according to procedure IQ002.



Additionally, work was completed regarding the drafting of the impact matrix for suppliers that provide equipment and/or materials in countries that entail risk, mainly from a social-labour perspective, and the identification of corresponding mitigating requirements.

In 2019, work was carried out to adjust the requirements that are demanded in the supplier management processes. This will allow other initiatives that it has synergies with to be enhanced (life cycle analysis, circular economy, regulatory compliance system...).

Specifically, within the environmental scope, progress continues to be made in the incorporation of minimum supplier requirements according to the impact of the activity/material provided taking into consideration the following aspects:

- Impact on biodiversity.
- Impact on soil and water.
- Climate change and air quality.
- Generation of non-hazardous and hazardous waste.
- Legal/regulatory non-compliance.
- Energy consumption
- Water consumption

On the other hand, the environmental requirements, in terms of training and specifications for the execution of the works, are part of the contractual documentation for those services in which they have been deemed necessary. In the case of the activities with the greatest potential impact, such as construction, refurbishment of facilities and some maintenance activities, part of the payment of the contracted work is conditional on the result of the relevant environmental certification process, which implies an extremely thorough monitoring of the established environmental requirements.

During 2019, a specific work program was carried out with those suppliers that have the greatest weight in the Company's indirect emissions (Scope 3). A Collaboration Programme was carried out with suppliers, involving 23 of the organisation's most relevant suppliers, which account for around 57% of the supply chain's emissions.

Thanks to this project, the emissions inventory has been improved by incorporating part of the direct information provided by the participants. Similarly, each of the suppliers has been qualified with a level of maturity in the area of climate change, which allows, in addition to making a general diagnosis of the supply chain, different and specific development and collaboration programmes to be deployed depending on the characteristics of each supplier. These actions will begin to be implemented throughout 2020.

In 2019, a new review and update of the Supplier Code of Conduct, foreseen to come into force in 2020, was carried out to transfer new sustainability criteria to the supply chain (environmental, ethics, occupational health and safety, wellbeing and diversity), adapting the Code to best practices in relation to due diligence with third parties and ensuring its alignment with the updating of the Company's Code of Ethics.



7.7.3. Internal Training and Awareness

Red Eléctrica considers environmental training as a strategic line to form a team which is increasingly more aware of environmental protection. The training given is beyond merely a professional level; its aim is also to contribute to improving environmental habits in both the daily work and family life of each employee.

The percentage of staff of Red Eléctrica who received specialised environmental training during 2019 was 8.96% (compared to 8.77% in 2018), corresponding to 158 people and a total of 338 hours of training.

Noteworthy is the following action:

- Awareness raising sessions on 'Dissemination of environmental values to employees of regional work centres': the training was given with the aim of publicising the impact of REE's activity on the environment and the Company's commitment to its conservation.

Environmental training represents 0.22% of the total training provided by Red Eléctrica in 2019.



7.7.4. Stakeholder Relations

Participation in Working Groups

Working Groups (WG)	Organiser
WG C3.12 'Methodologies for the calculation and reporting of carbon inventories in electricity transmission and distribution companies'	CIGRE (International Council on Large Electric Systems)
WG C3.14 Environmental responsibility	
WG C3.16: Interaction between electricity infrastructures and wildlife	
WG C3.17 Interaction between wildlife and emerging renewable energy sources and submarine cables	
WG C3.19 Responsible management of the Electric and Magnetic Field Issue.	
Study committee C3 (Environment): Secretariat of the committee	
National CIGRE committee (Environment committee member)	
Environment Community. Member and belongs to WGs	AEC (Spanish Association for Quality)
WG Assets Implementation and Management (AIM), Environmental Impact Assessment. Subgroup	ENTSO-E
SF ₆ Voluntary Agreement Monitoring Group	UNESA, AFBEL and MAGRAMA
Biodiversity Management Observatory Consultation Committee Energy Efficiency Observatory Sustainable Mobility Observatory	CES (Excellence in Sustainability Club)
Working group on electricity lines	Spanish Business and Biodiversity Initiative (Biodiversity Foundation)
Working Groups ST14 Conservation and Biodiversity. 2030 Horizon. Active collaboration of REE in the Business and Biodiversity WG. ST17 Conservation of pollinators. REE Exhibition of the <i>Biotransporte</i> Project. GT10 Solutions based on nature. ST16 Marine strategies.	CONAMA
Spanish Green Growth Group. Various working groups	Spanish Green Growth Group
Climate Change Cluster	Forética
Working Group 'Spanish Enterprise and Biodiversity Initiative'	Biodiversity Pact
Environment and Sustainability Working Group	Spanish Maritime Cluster
Working Group of the Spanish Energy Sector	Natural Capital Factory



Congresses, forums and informative sessions

Congresses, forums and informative sessions	Organiser
Participation in the Carbon Disclosure Project	CDP
International Climate Change Conference	IHOBE
+Renewables seminar. Smart grids and digitalisation for the energy of the future	El País (Spanish newspaper)
Valencia Biodiversity Week: Alcalà de Xivert-Alcossebre 2019	Regional Government of Valencia
Congress entitled 'European Business & Nature Summit'	Natural Capital Summit
Conference on the Valuation of Natural Capital	General Foundation of the University of Salamanca
Sustainable Urban Mobility Congress	United Cities and Local Governments (UCLG)
Congress entitled 'Leading practices in RES integration - a global perspective'.	Renewables Grid Initiative
Speech entitled: 'Challenges on energy transition: a paradigm shift'	Rafael del Pino Foundation
PCI Energy Days	European Commission
'Cuadernos en Red' Presentation day. Madrid.	ETSII (Higher School of Industrial Engineering)
EU Sustainable Energy Week	European Commission
11 th Spanish and 7 th Iberian Ornithology Congress	SEO Birdlife
Red Eléctrica Sustainability Week.	REE
Presentation entitled 'Birds and power lines: Mapping of bird flight paths'.	REE
Conference entitled 'Electricity lines and birdlife safety (transmission grid)' with the Island Council of Tenerife.	REE
Environmental education and support for the 'Aquila a Life' project.	REE
Seminars for better management of environmental legislation in environmental assessment processes.	REE



7.7.5. Communication and Dissemination of Environmental Information

The main channels of communication Red Eléctrica has for stakeholders regarding information pertinent to the environmental performance of the organisation are the following:

- Corporate reports. Red Eléctrica makes a significant effort to publish and disseminate publications as a key tool for communication with its various stakeholders. Among these reports, the Sustainability Report stands out as the main channel to transmit to the stakeholders the Company's commitments to sustainability and the activities carried out in this area. The Sustainability Report is verified externally in relation to the ISAE3000 standard in order to ensure the reliability of the information, as well as its adaptation to international reporting standards.
- The EMAS Environmental Statement through which information is provided regarding the environmental impact and behaviour of the organisation in addition to data regarding the continuous improvement in the field of environmental performance within the organisation and this is verified externally in relation to the European EMAS Regulation.

External communication

The corporate website is a communication tool that is developed under criteria of transparency and continuous improvement. Noteworthy in this field, are the following web-spaces that can be found in the 'Natural Environment' subsection of the 'Sustainability' section of Red Eléctrica's corporate website (www.ree.es/en):

- The Map of projects section includes, among other things, a new section entitled 'Noteworthy Projects' that includes the projects 'The Red Eléctrica Forest' and 'Birds and power lines: Mapping of bird flight paths': <http://www.ree.es/en/sustainability/noteworthy-projects>
- The section and subsections related to energy transition and climate change": <https://www.ree.es/en/sustainability/decarbonisation-of-the-economy/energy-transition-and-climate-change>
- The section dedicated to electromagnetic fields: <https://www.ree.es/en/sustainability/the-natural-environment/electric-and-magnetic-fields>

On the other hand, a total of 10 press releases with environmental content and 23 articles were written through the 'red 2030' blog. 7 special web pages related to biodiversity and climate change were drafted and published, and 68 tweets and 6 news items were published on Facebook, all of them of an environmental nature.

Lastly, it should be noted that the informative element on climate change and energy efficiency entitled: '*Making the energy transition possible. Red Eléctrica and the integration of renewables*', was published and two informative conferences were held with the media in the field of biodiversity.



Internal communication

The Company has a corporate intranet '*miRED*', for which data is available regarding the impact of '*miRED*' on internal environmental communication:

- Visits to *miRED*:

	2017	2018	2019
Environmental Section	Average of 32 visits/month	Average of 21 visits/month	Average of 10 visits/month
'Red Eléctrica eficiente' Community	67 followers	67 followers	67 followers
'Sustainable Mobility' Community	81 followers	84 followers	85 followers

- News of an environmental nature (includes environmental management, biodiversity, climate change, energy efficiency, sustainable mobility, etc.) published in *miRED*:
 - 28 news items published in the 'Carousel'.
 - In addition, the *miRED* wall is open for all Company employees to publish news that is of interest.

Furthermore, as in prior years, a great number of projects and initiatives have been undertaken, in four specific areas taking four key dates as a reference point. Internal communication tools (*miRED* and display screens in the foyer, corporate canteen and coffee break areas) are used for this communication purpose.

- Communication campaign 5 March (World Energy Efficiency Day): A series of messages was programmed and launched on social networks, the corporate website and to employees through the internal communication channels designed for this purpose.
- 22 March, World Water Day. Messages published via internal communication channels. Messages issued by the United Nations (UN).
- 17 May International Recycling Day. Messages published via internal communication channels.
- 16-22 September - European Mobility Week. Actions linked to mobility week. Publication of messages using the various internal communication channels.



7.8. Innovation

During 2019, expenditure on innovation of an environmental nature increased to 886,748 euros. This amount represents **8.37%** of the total expenditure on innovation (10.6 million euros). With the collaboration of all the areas involved, the following innovation projects stand out from the point of view of sustainability and the environment (some have already been mentioned in other sections of this EMAS Report):

Development of a modular, sustainable and flexible transformer	Progress in obtaining a transformer design in which the use of natural esters is economically viable, identifying the key aspects for the development and manufacture of an economical transformer prototype that uses these esters.
Green Battery	Design and validation of an energy storage system powered by renewable generation sources (wind and photovoltaic), which enables the auxiliary services of a substation to be powered (electronic equipment, air conditioning, lighting) a need that is currently covered by mobile generator units.
Sustainable treatment methods for soil and groundwater affected by leaks or spills of dielectric oils or hydrocarbons	The aim is to find innovative solutions for the treatment of these pollutants in the field, which will enable a complete clean up in situ or on site (excavated and treated on site). The alternative procedures to excavation and depositing in landfill sites allows the volume of waste generated to be reduced. Although different techniques are considered, priority will be given to bioremediation, as a technology that, in addition to detoxifying the soil, restores its ecological properties. In this regard, the aim is to identify bacterial cultures with the maximum degrading capacity for the substances used by Red Eléctrica.
Vegeta 2	<i>Described in section 6.2.4.4</i>
PRODINT	<i>Described in section 6.2.4.4</i>
SF ₆ sensors through the use of graphene	SF ₆ sensors and component detectors through the use of graphene and/or carbon nanotubes.
SF ₆ gas recovery in indoor GIS	The final objective of the project is the development of a material which has the property of retaining and confining SF ₆ that may be released in indoor GIS substations. The motivation arises from the need to reduce the emission of fluorinated gases into the atmosphere due to their harmful effects on the environment.



8. Environmental Risks

Red Eléctrica has a comprehensive risk management system in place in order to facilitate compliance with the Group's strategies and objectives, ensuring that the risks that could affect them are identified, analysed, assessed, managed and controlled systematically, with uniform criteria and within the level of acceptable risk approved by the Board of Directors.

The Management System is carried out pursuant to the ISO 31000 standard on the principles and guidelines in risk management and is ongoing and comprehensive in character.

There is also a Comprehensive Risk Management Policy and a Comprehensive Risk Management and Control Procedure, based on the Comprehensive Risk Management Framework COSO II (Committee of Sponsoring Organisations of the Treadway Commission).

The General Comprehensive Risk Management and Control Procedure regulates the process of identification, analysis, assessment and management control of the relevant risks faced by Red Eléctrica. This process is developed in order to ensure that the different levels of responsibility of the Company are aware of and assess the risks that threaten the strategies and objectives, and that the management of such risks is carried out within the limits of the acceptable risk levels established.

Operational risks are among the different types of risks for Red Eléctrica. Included among them are risks of an **environmental nature**. These risks are mainly related to the natural environment in which the activities are carried out.

In addition, the risk management system establishes a methodology for determining the level of risk so that all risks are classified individually into three categories: high-risk, medium-risk and low-risk. The level of a risk is established by combining two variables, the probability of occurrence and the impact said risk would have on the Company and on the four key elements of the business, should it materialise: electricity supply, achievement of essential strategies, reputation and economic loss.

The tables shown on the following page outline the main risks and actions that have been identified from an environmental point of view:



Code	Risks arising from climate change	Main actions for the management of risks
1A010R03	Climate change: Legal requirements related to Fluorinated Gases (F-Gases).	<ul style="list-style-type: none"> • Commitment and action plan for the fight against climate change. • Voluntary agreement for comprehensive management of SF6 gas in the electricity industry, between the Ministry of Agriculture, Food and Environment, equipment manufacturers (AFBEL), UNESA, REE and waste managers. • Development of system operation tools (CECRE). • Construction of new transmission lines for the evacuation renewable energy. • Strengthening of international interconnections. • Development of demand-side management initiatives (interruptibility service, measures to achieve a more efficient consumption profile, initiatives for the implementation of the electric vehicle). • Development of research and innovation projects: new technologies and technical solutions for efficient system management, new tools for emergency situations, smart demand management, energy storage.

Code	Risk of impacts on the natural environment	Main actions for the management of risks
1A011R04	Impact on archaeological and ethnological heritage	<ul style="list-style-type: none"> • Application of strict environmental criteria in all phases of planning, development and maintenance of facilities. • Environmental supervision of construction works. • Biodiversity strategy and actions. • Development of research projects and fire prevention plans. • Projects for birdlife conservation. • Training courses in environmental matters for field personnel. • Environmental awareness of suppliers. • Implementation of the Environmental Work Certification. • Establishment of collaboration agreements on environmental protection with the various Autonomous Communities. • Fire protection plans. • Contingency plans.
1A012R01	Risk of fires due to lines and in substations	
1A012R03	Impact on birdlife due to transmission grid facilities	
1A012R04	Contamination of soils and / or ground, surface or marine waters due to leaks or spills of oils, fuels and hazardous substances	
1A013R01	Inadequate actions of suppliers with relevant environmental consequences	



In the process of identification, analysis, assessment and control of risks, the necessary actions are established to reduce the level of risk and take it to the acceptable risk value.

In 2019, the assessment of risks related to the environment and climate change was updated.

During 2019, an operational risk with an impact on the environment materialised.

On 11 September 2019, the protection systems for the submarine electricity link between Spain and Morocco detected a leak of insulating fluid in one of the cables (cable number 7) of the two circuits that make up the electricity interconnection, which is owned 50-50 by L'Office National d'Électricité et de l'Eau Potable (ONEE) of Morocco and Red Eléctrica de España.

The fault was located in Moroccan waters some 15.4 km from the Spanish coast at a depth of 490 metres. It is worth stressing that the insulating fluid is biodegradable. The investigations carried out and the available evidence indicate that the incident was due to external aggression.

When the incident occurred, the leak containment system was automatically activated, as per the link's design, and the pressure of the insulating fluid was progressively reduced down to the minimum level considered technically viable. From the outset of the incidence, the National Maritime Plan for the interconnection in its alert phase was activated, and Spanish maritime authorities, the Ministry of Ecological Transition and all other relevant authorities were kept duly informed on the incident at all times. Lastly, noteworthy was that the work to seal the interconnection was completed on 16 October and efforts then focused on repairing the interconnection link.

Red Eléctrica has proactively increased its monitoring plan for the zone and for maritime activity along the entire route taken by the submarine interconnection cables during the time the circuit has been rendered inoperative, implementing an action plan that supplements the standard monitoring and supervisory activities. To this end, additional alarms and in situ monitoring have been included in the control system and in the Automatic Identification System (AIS) monitoring system. This supervision consists of conducting monitoring of the interconnection cable route using a ship. This work is of the utmost importance, as it serves to warn ships that are anchored or proceeding at low speeds in these areas of the ban that prohibits them from staying there and to instruct them to move on to other locations.

On the other hand, regarding the risks associated with climate change, in 2019 a total of 45 potential risks were identified and assessed taking into account the criteria of exposure, sensitivity and capacity to adapt. In addition, as included in the Task Force for Climate-Related Financial Disclosures (TCFD) recommendations, various scenarios, different for physical and transition risks, have been considered.

Scenarios and horizons considered for the assessment of climate risks

- **Physical risks:**

The projections developed by the State Meteorological Agency (AEMET) have been considered for the most important scenarios of the AR5 of the IPCC (RCP 4.5 and RCP 8.5).⁵⁰

Horizon: 2030-2050-2070

- **Transition risks:**

The trend scenario and the objective scenario included in the proposal for an Integrated National Energy and Climate Plan, submitted to the European Commission, are considered.

Horizon: 2020-2030

⁵⁰ IPCC Fifth Assessment Report (2014) drawn up by scientists from various countries. RCP 4.5 is a target scenario and RCP 8.5 is a trend scenario contemplating greater changes in climate parameters.



The Company has defined and prioritised the most relevant risks for its business and has proceeded to monetise those for which a potential financial impact has been identified (*not all priority risks for the Red Eléctrica Group, given the condition of its regulated activity, necessarily imply a financial impact for the organisation*).

The relevant risks derived from climate change with an impact over a time horizon of one year have been incorporated into the Corporate Risk Map, so the same governance model applies to all the risks included within it. This is the case of risk 1A013R03 Climate change: *Legal requirements regarding fluorinated gases*. The process of identifying and evaluating risks associated with climate change is carried out annually.



	Relevant risks associated with climate change	Potential impact on the business	Mitigating actions
Physical risks	<ul style="list-style-type: none"> • Impact on outdoor facilities (electricity lines) due to extreme events (wind). (*) • Fires beneath the lines and in the vicinity of electricity substations. (*) 	<ul style="list-style-type: none"> • Damage to infrastructure. • Impact on the electricity supply. • Reputational impacts (associated with power outages). • Impacts on third parties or the environment (in the case of fire). 	<ul style="list-style-type: none"> • MANINT project, to optimise the management of transmission grid assets. • Projects for the improvement and strengthening of transmission grid facilities. • Tree-felling and pruning back (forestry) plans. <i>VEGETA</i> project. • Innovation. <i>PRODINT</i> Project. • Contingency plans. • Insurance policies.
Transition risks	<ul style="list-style-type: none"> • Claims/grievances due to limitations to renewable production and incidents that may impact the security of supply in the Canary Islands. (*) • Difficulties associated with the monitoring and control of a system that has a higher penetration of renewable energy with high volatility in its production (*) • Loss of staple generation sources associated with the closure of coal-fired, combined cycle and nuclear power stations. 	<ul style="list-style-type: none"> • Increased difficulty in system operation (volatility of production, lack of monitoring...). • Increased risk of incidents in system operation that may affect the supply. • Increased production constraints and restrictions. • Increase in the number of claims/grievances. 	<ul style="list-style-type: none"> • Development of system operation tools and the safe integration of renewables (Control Centre of Renewable Energies, CECRE). Adaptation to more demanding monitoring and control requirements. • Development of prediction models regarding renewable generation. • Construction of new transmission lines to evacuate renewable energy. • Strengthening of international interconnections. • Promotion of demand-side management initiatives and smart grids, including the Control Centre for the Electric Vehicle (CECOVEL). • Development of large-scale energy storage projects (Chira-Soria pumped-storage hydroelectric power station) and energy storage batteries in non-peninsular territories and in networks at an end user level (innovation projects). • Insurance policies.
	<ul style="list-style-type: none"> • Difficulties in commissioning the infrastructure needed for the energy transition (*) (mainly linked to the social opposition to this type of infrastructure and the long periods of time needed to process the permits required for its development). • This same risk is identified and analysed specifically in the case of international interconnections. (*) 	<ul style="list-style-type: none"> • Increased difficulty in system operation (volatility of production, lack of monitoring...). • Increased risk of incidents in system operation that may affect the supply. • Increased production constraints and restrictions. • Increase in the number of claims/grievances. 	<ul style="list-style-type: none"> • <i>INTEGRA</i> project, to facilitate the adequate planning for the supply of services and material needs. • Stakeholder management model related to transmission grid investment projects. • Communication plan regarding the transmission grid planning process. • Development of public participation processes.



<ul style="list-style-type: none"> • Risks associated with the regulatory framework established for the construction and management of energy storage facilities in non-peninsular systems. • Remuneration framework associated with adapting the grid infrastructure to the needs arising from climate change.⁵¹ 	<ul style="list-style-type: none"> • Economic impact due to delays in incorporating the assets into the remuneration model, or total loss of remuneration due to not being able to put them into service. • Increase in the number of claims/grievances. • Effect on the Company's reputation (in the case of delays in the development of infrastructure required for the National Energy and Climate Plan). 	<ul style="list-style-type: none"> • Dialogue with the regulator. • Monitoring and participation in regulatory development processes.
<ul style="list-style-type: none"> • Increased legal requirements associated with the use of fluorinated gases (SF₆) (*) 	<ul style="list-style-type: none"> • Economic loss associated with an unfavourable regulatory framework. • Costs associated with adapting infrastructure to the physical conditions resulting from climate change. 	<ul style="list-style-type: none"> • Voluntary agreement for the comprehensive management of SF₆ in the electricity industry, between the Ministry of Ecological Transition, equipment manufacturers (AFBEL), UNESA, REE and waste management companies. • Development of leakage repair methodology. • Renewal of equipment. • Training and accreditation of personnel. • R&D in the search for alternatives to SF₆ gas. • Participation in working groups. • Monitoring and participation in regulatory development processes.

Note: the risks identified with (*) have been monetised.

⁵¹ The financial impact of these risks is integrated into other risks. It should be noted that, in the case of physical risks, the financial impact is significantly reduced thanks to insurance policies, with the estimated annual impact being less than 1% of the Group's profit. The most relevant transition risks are related to the difficulties in putting into service the infrastructure required to meet the objectives of the energy transition. The estimated annual impact for these risks is, in the worst case, less than 3% of the Group's profit. For the remaining transition risks, the annual financial impact is less than 1% of the Group's profit.



Risks arising from Legal Requirements and other Requirements

Red Eléctrica has in place a Compliance System that is aligned with the best practices in this field, in order for the Organisation to adequately comply with the established obligations and commitments undertaken.

The compliance function aims to promote a global and anticipatory vision of compliance risks, and ensure an efficient control of such risks, guaranteeing the coordination and standardisation of their management at a corporate level, improving internal control within the organisation.

One of the regulatory areas in which the compliance system is being developed is the Natural Environment. One of the key objectives is based on promoting a global and anticipatory vision of compliance risks, ensuring an efficient control of said risks, guaranteeing the coordination and standardisation of its management at a corporate level, as well as improving internal control in the organisation.

Although the Company has an environmental management system based on the 14001 standard that has been in place since 1999, it also has a process implemented for the identification and assessment of legal requirements and other requirements that allows the Company to comply with them and, more importantly, anticipate and be prepared when faced with the modification or appearance of new requirements. Nonetheless, a preliminary map of environmental compliance risk was defined and developed.

In addition to identifying and assessing risks, a specific methodology was defined in order to identify and assess the key controls that mitigate such risks.

To date, 14 risks have preliminarily been identified and assessed. Each of which has different evaluation parameters when assessing the risk.

Risks assessed	
1. Not adopting or not complying with the necessary preventive measures to avoid damage to the natural environment.	7. Non-compliance with the Environmental Impact Statement.
2. Not adopting or not complying with the necessary corrective measures to repair any damage caused to natural resources or the environment.	8. Generation of fires.
3. Discharge of wastewater and contaminating liquid waste products without proper/due authorisation.	9. Conducting felling and pruning works without prior administrative authorisation.
4. Existence of high-voltage overhead electricity lines that do not comply with the minimum safety distances or warning signage defined and established by the Public Administration.	10. Conducting work without authorisation in periods declared as high-fire risk.
5. The Company losing its presence in the sustainability indexes.	11. Inadequate management of hazardous and non-hazardous waste (operational and documental).
6. Not carrying out the administrative permitting process for a project and/or works subject to an Environmental Impact Assessment.	12. Loss of ISO certification.
	13. Loss of EMAS certification.
	14. Inadequate actions by suppliers having relevant impacts on the natural environment.



9. Objectives. Annual Environmental Plan

In order to perform continuous improvement of environmental performance and processes, Red Eléctrica annually defines an environmental plan in which the objectives derived from the different strategies of the Company are specified and specific work actions are defined.

The purpose of Red Eléctrica's environmental plan is to develop an annual action plan that includes all those tasks of a voluntary nature that have an environmental component associated and that are expected to be carried out throughout the year.

The Environmental Plan includes the voluntary actions planned for the current year arising from the Environmental Management of Facilities, as well as those actions derived from the Multi-year Action Plans currently in force, as a result of the commitments undertaken by Red Eléctrica in the field of Biodiversity and its Commitment to the fight against Climate Change.

All the defined objectives, and therefore the actions/projects identified, are aligned with Red Eléctrica's Strategic Plan and its 2030 Sustainability Commitment, as well as with the other various strategies and programmes that the Company currently has in force, thus highlighting the growing environmental dimension of the Company and contributing to making progress in the defined courses of action that will help guarantee the success and the achievement of common goals.

The areas of action included in the 2019 Environmental Plan are grouped into three defined and interrelated vectors that correspond to the Company's most relevant areas of environmental activity:

- Environmental management of facilities: this encompasses the activities of integrating facilities into the environment (area considered as a material aspect), the prevention of contamination, as well as the generic cross-cutting activities related with environmental management.
- Biodiversity.
- Climate Change.

Both Biodiversity and Climate Change are also considered by the Company as material aspects and therefore require specific management, mainly to respond to the requirements of different stakeholder groups.

The main challenges for the Company regarding each of the vectors have been identified and the specific targets to be achieved have been defined. These targets are taken as a reference and help establish priorities and define the different tasks or projects to be included in the corresponding environmental plans.

Therefore, the Environmental Plan includes the actions derived from the approved Biodiversity and Climate Change action plans and the courses of action that have been defined to achieve the goals identified in relation to the Environmental Management vector.

The overall fulfilment of the 2019 Environmental Plan stood at 67.8% at year end.

Regarding the degree of fulfilment, depending on the relevance of the tasks (classified as *very relevant/high relevance/moderate relevance* according to an internal methodology based on a series of parameters), it can be concluded that 78% of the *very relevant* tasks and 63% of those of *high relevance* have been fulfilled.

Only 5.1% of the tasks have been cancelled/dismissed. The rest of the tasks could not start during 2019 (12%) or they have not reached the degree of achievement necessary to be considered as fulfilled (12.7%). It is important to highlight that all these actions, as well as the rest of the actions not fulfilled in the 2019 Annual Plan, without counting those that have been cancelled or dismissed, have been carried over and included in the Environmental Plan for 2020.

Taking into account the ambitious and aspirational nature of the Plan and that all the tasks associated to it are voluntary, the result obtained can be considered positive, as the true objective of the Plan is not so much to reach a percentage fulfilment of tasks annually but to work on seeking the continuous improvement of the environmental behaviour of the Company in an ambitious way in order to meet objectives.



Some of the most relevant tasks carried out in each of the vectors are highlighted below:

Vector	Task	Results obtained
A. Environmental management of facilities	Diagnosis of the substations in terms of noise emission levels derived from the applicable legislation. Phase 1: Evaluation of sound pressure levels in the vicinity of substations with power transformers.	Measurements were taken in 18 substations and a total of 134 have been evaluated via a simulation method. Although the results of the simulations indicate a lack of compliance with the night-time noise level in the majority of the substations, taking into account that the real measurements have given significantly lower noise levels than those estimated by the simulation, it is considered that working on the basis of the results of the simulations for legal compliance gives us sufficient confidence that the values obtained through the traditional measurement methodology fall within the limits.
	Implementation of upgrades and new functionalities in the Company's environmental management application (SACORP).	Over 90% of upgrades were implemented.
	Diagnosis of leakage points in substations with power transformers. Phase 2: Analysis of the state of the oil containment systems located in 120 substations with power transformers.	A total of 134 substations were evaluated from a technical and legislative point of view regarding the 'leaks and spills' aspect. An action plan is being prepared to remedy any technical-administrative deficiencies detected.
	Cultural agreement with an Autonomous Community: Formalisation of the first collaboration agreement in cultural matters, replicating the successful model of fire collaboration agreements.	Signing of a cultural agreement with the Regional Government of Castilla-La Mancha.
	Drafting of a Roadmap towards a circular economy.	Drafting of a roadmap with objectives for the 2022-2027-2030 horizon in order to become a circular business by 2030.
B. Biodiversity	Execution of the 2017-2023 multi-year line marking plan.	60.7% of the critical priority areas have already been marked.
	Design of a metrics methodology for the assessment of the state of impact of REE on natural capital and biodiversity. Application to existing facilities that were commissioned recently.	New methodology defined for the study and assessment of ecosystem services for transmission grid facilities.
	Establish collaboration agreements with the competent entities in matters of prevention and the fight against forest fires for the promotion of adequate forestry management regarding Red Eléctrica facilities.	Renewal of 6 agreements during 2019.
	Promote actions aimed at the recognition by the Public Administration of the effectiveness of the 'blade-type' bird saving devices.	The report of the Doñana Biological Station was received. Said report included a global analysis of the comparison of the effectiveness of the 'blade-type' versus the 'spiral-type' bird saving devices, which showed that the 'blade-type' model had slightly better results. In addition, a meeting was held with MITECO to present the results obtained.



		<i>Continued from previous page</i>
	Offsetting the loss of native flora as a result of felling works for newly constructed infrastructure that entails the opening of safety corridors for new electricity lines.	An initial agreement was signed with the objective of offsetting the loss of native flora, whereby some 200,000 euros will be invested in the restoration of 53 hectares of an area affected by fire in the municipality of Altura (Castellón). Planting trees will help restore the habitat and landscape and protect the soil from erosion and nutrient loss.
C. Climate Change	Identification and assessment of risks and opportunities associated with climate change and their reporting, taking into account the recommendations of the <i>Task Force on Climate-Related Financial Disclosure</i> (TCFD) for the reporting of financial risks arising from climate change. Formalisation of the process of identification and the consideration of opportunities.	A total of 45 potential risks were identified and assessed considering exposure, sensitivity and adaptability criteria.
	Interventions in the Litoral and Granadilla substations to seal SF ₆ leaks by means of an innovative technique.	The emission of a high volume of greenhouse gases into the atmosphere has been avoided and the carbon footprint has been reduced in Scope 1 (direct emissions).
	R&D+i SF ₆ projects. Alternatives to SF ₆ gas contained in high voltage switchgear: 66 kV mobile GIS substation bay unit and an AIS switch using an alternative gas to SF ₆ .	Pre-testing associated with the installation of two mobile GIS substation bays using an alternative gas in place of SF ₆ .
	Improvements related to the use of lighting. Analysis and implementation of measures for the efficient use of lighting in existing substations: night-time lighting shutdown of substations.	Implementation of controlled night-time lighting shutdown in more than 405 substations.
	Calculation of the carbon footprint associated with the life cycle of facilities. Theoretical carbon footprint calculation for increasing the power capacity of a line and the development of a true carbon footprint calculation for an overhead line.	A methodology is already available for calculating the carbon footprint for increasing the power capacity of a line, overhead lines, substations and underground lines. In addition, the calculation methodology has also been applied with real data from a recently built facility (incoming and outgoing feeder lines of the Don Rodrigo substation).

With regard to the monitoring of the degree of annual fulfilment of each of the targets (2017-2020) associated with each of the environmental vectors, a fulfilment level of 51% has been confirmed to date.

It should be borne in mind that many of the targets considered as not fulfilled to date, have their fulfilment level set for 2020 (or beyond). Nevertheless, they are on track to being fulfilled or have shown improvement with respect to previous years.

In any case, the final and overall analysis of fulfilment of the challenges and targets will be made in 2020 after the end of the horizon set for their fulfilment (2017-2020).



10. Accidents with Environmental Impacts

At Red Eléctrica we are well aware of the consequences that an accident may have on the environment, and for this reason, we apply preventive measures to reduce the likelihood of them happening, or in the event they might occur; minimise the impact on the environment. The evolution of incidents with environmental impact in the last three years is reflected in the following table:

Incidents reported	2017		2018		2019	
	Accident	Incident	Accident	Incident	Accident	Incident
Construction work activities	0	35	0	35	1	28
Fires due to fault in lines	0	0	0	0	0	0
Fires due to fault in substations	0	0	0	0	0	0
Leaks and spills of oil due to error in the filling of transformers	0	0	0	0	0	0
Leaks and spills of oil and hydrocarbons due to minor breakdowns during the use of machinery during construction works	0	35	0	35	0	28
Leaks and spills of hazardous substance due to explosion of equipment	0	0	0	0	0	0
Leaks and spills of hazardous substance	0	0	0	0	0	0
SF ₆ leaks	0	0	0	0	0	0
Effects on flora	0	0	0	0	1	0
Maintenance activities ⁵²	8	36	8	31	9	22
Fires due to fault in lines	0	0	1	0	2	0
Fires due to fault in substations	0	0	0	0	0	0
Towers brought down due to severe weather conditions	0	0	0	0	0	0
Leaks and spills of oil and hydrocarbons during the use and maintenance of substation equipment	8	35	2	31	4	20
Oil leaks in lines	0	0	1	0	2	0
Floods	0	0	0	0	0	0
SF ₆ leaks due to explosion of equipment or other accidents	0	1	4	0	1	0
Leaks and spills of hazardous substances	0	0	0	0	0	2
Effects on flora	0	0	0	0	0	0

As of 2017, a new category has been identified in order to improve the prevention of accidents and the management of environmental risks associated with accidental events. This category has been called 'Near Accident' which is defined in the internal regulations as: "that event that has the potential to cause an accident or incident of an environmental nature without it actually materialising. It does not generate damage, but it has the potential to generate it".

⁵² Bird collisions with electricity lines in service and under construction are dealt with in a separate table.



During 2019, two 'near accidents' involving birdlife were identified in the Canary Islands Regional Area: one in the Abona substation involving a Scopoli's Shearwater (*Calonectris Diomedea*) and one on the 132 kV Gran Tarajal-Matas Blancas line where an Egyptian vulture (*Neophron Percnopterus*) got hooked up on a spiral-type bird saving device but finally was able to unhook itself.

- **Construction**

In the construction phase **there was only one accident during 2019 with environmental consequences** and there were 28 incidents reported, which represents 56% of the total environmental incidents (construction + maintenance) that occurred during 2019.

The minor accident occurred during the construction of the new Majorca-Minorca interconnection during the horizontal drilling works in the beach area (catalogued as RN2000). There was a spill of non-hazardous sludge on a limited area of sand dune and on the access path. The spilled sludge was immediately removed, and the hole generated in the dune area was filled in.

All the incidents correspond to leaks and spills of oils and hydrocarbons, the main causes being the rupture of flexible hydraulic hoses or small leaks and drips from the machinery used in the construction of electricity lines and substations.

- **Maintenance**

In the maintenance phase **there were 9 accidents and** 22 incidents (representing 44% of the total).

The accidents were associated with: one due to SF₆ leaks (11%), four due to leaks and spills of oils and hydrocarbons in substations (45%), two due to an oil leak in a line (22%) and two related to fire due to a fault in a line (22%).

Three of the accidents were classified as serious (33.5%), two were classified as relevant (22%), three were classified as low relevance (33.5%) and one was classified as minor (11%).

The accidents evaluated as **major** were the following:

- Two of these occurred in the submarine section of the 400 kV Tarifa-Fardioua line (ESMA1-cable 4) and (ESMA2-cable7).
 - The accident corresponding to the ESMA2-cable 7 occurred as a result of a breakage of the cable causing the discharge of about an estimated 16.900 litres of insulating fluid. This fluid, necessary for the electrical insulation of submarine cables, is easily biodegradable. Due to the location (15.4 km off the Spanish coast, following the route of the cable) and depth (490 metres) at which the incident occurred, the high dispersion due to strong currents in the Strait of Gibraltar and the lack of there being of any trace of the fluid neither in Moroccan waters nor in Spanish waters, it is estimated that this accident had no harmful consequences for the marine environment. The source of the breakage is due to external causes that affected the submarine electricity cable, this was determined to be the case as the cable was found to be damaged and had moved from its initial installation location, and additionally a cable-laying ship was identified as having been performing subsea work in the vicinity of the accident. Both anomalous situations are compatible with an external aggression to the cable. The sealing work on the damaged cable was completed in October 2019.



- The one corresponding to the ESMA1-cable 4 occurred due to a failure in the sealing repair work made to it after the accident suffered in 2018. A total of 550 litres of cooling insulation fluid was spilled. The leak was located 9.2 km from the Moroccan coast, at a depth of less than 100 metres and in Moroccan territorial waters. The leak was checked, and the sealing operation was completed in October 2019.
- The remaining oil spill occurred in the Magallón substation due to the discharge from REA 1 of some 3,500 litres of oil from the terminals, the expansion tank and the collection tank. The effect on the soil was extensive, 500 m², but a priori it was superficial and did not leave the confines of the substation. An urgent clean-up of the affected soil was carried out and a subsequent analysis of the remaining soil was conducted with a view to completing the clean-up of the soil.

Of the two accidents evaluated as **significant**, one is due to the breakage of an oil terminal in the San Sebastián de los Reyes substation due to a lightning strike that caused a fire and the spillage of the oil it contained (350 litres) onto the ground, affecting an area of approximately 70 m². Excavation work was carried out with analysis of the remaining soil.

The other took place at the Muruarte substation due to a break in the lower valve of the transformer (ATP1). A leak of 1,600 litres of oil occurred, all of which was contained in the collection tank.

Lastly, two small fires of a minor nature caused during line maintenance work carried out by contractors should be highlighted. As a result, it was agreed to launch a Forest Fire Prevention Working Group with a view to identifying and implementing the best actions/practices needed to work more effectively and reduce risk.

In the case of incidents related to maintenance, the situation is very similar to that of construction. Of the 22 incidents, 20 correspond to oil and hydrocarbon leaks and spills during the use and maintenance of substation equipment. The other two are related to the spillage of antifreeze due to the breakage of a radiator belonging to some machinery and another due to the spillage of a product from a chemical bath.



Birdlife collisions with overhead lines

Regarding bird collisions in 2019, 18 collisions were detected corresponding to species of birds catalogued as vulnerable and/or in danger of extinction according to the Regional Catalogue, the National Catalogue and/or the IUCN Red List. A further 30 collisions were detected, however these corresponded to focal species.

Of the 18 bird collisions catalogued, 13 were detected during intensive monitoring of electricity lines (3-year monitoring) and 5 during routine monitoring included in the work plan for facilities maintenance and as a result of specific monitoring studies.

Endangered species affected	No. of birds affected
Great Bustard (<i>Otis tarda</i>) ⁵³	6
Iberian Imperial Eagle (<i>Aquila adalberti</i>) ^{54 55}	1
Bonelli's Eagle (<i>Aquila fasciata</i>) ⁵⁶	2
Egyptian Vulture (<i>Neophron percnopterus</i>) ^{57 58}	1
Houbara Bustard (<i>Chlamydotis undulata</i>) ⁵⁹	1
Black-bellied sandgrouse (<i>Pterocles orientalis</i>) ⁶⁰	3
Black Vulture (<i>Aegypius monachus</i>) ⁶¹	1
European Turtle Dove (<i>Streptopelia turtur</i>) ⁶²	2
Little Bustard (<i>Tetrax tetrax</i>) ⁶³	1
Total	18

⁵³ Vulnerable species according to the International Union for Conservation of Nature (IUCN) red list.

⁵⁴ Vulnerable species according to the International Union for Conservation of Nature (IUCN) red list.

⁵⁵ Species in danger of extinction according to the national catalogue of endangered species.

⁵⁶ Vulnerable species according to the national catalogue of endangered species.

⁵⁷ Species in danger of extinction according to the International Union for Conservation of Nature (IUCN) red list..

⁵⁸ See note 56

⁵⁹ See note 53 and 55

⁶⁰ See note 56

⁶¹ See note 56

⁶² See note 53

⁶³ See note 56



11. Legal Compliance Assessment

In the case of legal, regulatory and other mandatory requirements, the Company assumes as a commitment, as part of the Environmental Policy the Red Eléctrica Group, to comply with the environmental legislation, regulations and other mandatory requirements applicable to the activities it carries out.

In order to identify and assess the applicable legal requirements, Red Eléctrica has in place a process that systematically covers all the phases of the activity; planning/project, construction and maintenance, and considers not only the requirements originating from European, national, regional and local regulations, but also those obligations derived from the Environmental Impact Statement and other administrative authorisations, as well as the voluntary commitments that the organisation subscribes to (pacts, agreements, etc.)

For the identification and evaluation of the legal environmental requirements that apply to the different phases involved in the development and implementation of transmission grid infrastructure, in their respective scopes of applicability: European, national, regional and local, the following process is put in place:

- **Definition of Projects:** those facilities that have an 'Environmental Impact Study' incorporate the applicable environmental legislation during the design phase of the project and in any case, all applicable requirements are registered through an IT application.
- **Construction or modification of facilities:** during the construction phase, the applicable environmental requirements (internal and external) are set out in the environmental specifications of each project and/or in the construction Environmental Monitoring Programme (EMP), if applicable. In order to assure and reinforce the process, it is established that prior to the start of the execution of a construction project, an initial assessment will be carried out regarding the legal environmental compliance with all the applicable legal requisites (including those at the municipal level), in order to detect possible shortcomings prior to the execution. Subsequently, an assessment is performed one year after the start of the project, during each environmental supervision visit, and once it is finished. In addition, in those works where supervision needs to be both intensive and permanent in nature, monthly reports are drafted to monitor the work, which include the evaluation of the legal requirements that are applicable to the construction activity of the facility being supervised, ensuring legal compliance and the application of corrective and preventive measures in the course of the activity.
- **Maintenance of infrastructure:** during the maintenance of infrastructure/facilities, apart from the applicable regulations, environmental requirements derived from the Environmental Monitoring Programme for the operation phase (in facilities with Environmental Impact Statement - EIS) and in the transfer document for maintenance. All facilities have a transfer document, which includes all the requirements, and internal and external environmental commitments (among them, the ones defined in the EIS for the operation phase). In addition, the infrastructure/buildings shall meet the requirements set out in the authorisations for felling and pruning, removing nests, wells, septic tanks, waste generation and fuel tanks.

Once the results of the legal compliance reports are available, solutions are analysed and established for those cases where deviations occur with respect to what was foreseen. Depending on the case, tasks and actions will be established or corrective actions will be adopted that allow the activities to be adapted to the legal and regulatory requirements set. In addition, activities are carried out regarding the identification, registration, updating, compliance assessment and reporting of requirements related to any agreements, contracts and voluntary engagements of an environmental nature.

The activities carried out by Red Eléctrica comply with the applicable environmental requirements of a European, national, regional and local nature, as well as the voluntary requirements undertaken.

Those possible practices considered inadequate by the Public Administration and that result in administrative proceedings (claims/cases) that are granted leave to be heard, are settled in all cases with administrative sanctions of a low monetary value. The table on the following page details the type of infringement committed and the total cost of the same (as a result of the administrative proceedings settled with a sanction) in the period **2013-2019**.



Type of infringement ⁶⁴	2013		2014		2015		2016		2017		2018		2019	
	No. of claims / cases	Amount (€)	No. of claims / cases	Amount (€)	No. of claims / cases	Amount (€)	No. of claims / cases	Amount (€)	No. of claims / cases	Amount (€)	No. of claims / cases	Amount (€)	No. of claims / cases	Amount (€)
Fire risk ⁶⁵	6	6,522	1	100	2	811	2	751					1 ⁶⁶	270.46
Unauthorised felling and pruning	4	1,597	2	2,175	2	200	2	7,060			2* ⁶⁷	1.451		
Felling, pruning and clearing without preventive measures														
Fire due to line discharge														
Waterway obstruction/works in areas without authorisation	1	1,200	2	3,600										
Activities that could contaminate soils														
Accumulation of biomass waste	1	100												
Fauna in captivity w/o authorisation	1	100												
Works in protected areas without authorisation													1 ⁶⁸	4,800
Unauthorised works	1	2,000												
Opening up of a forest trail without authorisation			1	1,001	1	2,000								
Use of a helicopter in a critical birdlife area without authorisation					1	1,000								
Electricity line crossing livestock trail without authorisation					1	30,051	1	30,051						
Incorrect waste management					1	2,500								
Total No. of claims/cases/€	14	11,519	6	6,876	8	36,562	5	37,862			2*	1,451		

⁶⁴ This data is reviewed annually to include resolved cases that were initiated in previous years. Therefore, the data that has been affected by the cases resolved in 2019 are marked in red.

⁶⁵ Risk of fire due to the lack of maintenance of vegetation or the abandonment of material.

⁶⁶ PA2019/74 Electricity line works without fire prevention measures implemented and not complying with the vertical distance of the vegetation from the electricity conductors.

⁶⁷ PA2018/20 Unauthorised felling and pruning in public water reservoir and easement areas.

⁶⁸ PA2019/13 Carrying out work (increasing the height of towers) in a Regional Park without authorisation.



12. Environmental Expenditure

During 2019, Red Eléctrica has made environmental investments totalling **1,740,988.77 euros** in new facilities, equating to 0.44% of the total amount invested in the transmission grid (411 million euros). These investments correspond to the execution of Environmental Impact Assessments of all projects, implementation of preventive and corrective measures, environmental monitoring of electricity facilities under construction and the application of compensatory measures related to environmental aspects.

Similarly, during 2019 expenditure totalling **25,806,074.64 euros** was made in the improvement and protection of the environment, representing 2.79% of the total operating costs.

	2017	2018	2019
Investment	1,334,887.40	1,160,634.26	1,740,988.77
Engineering and construction of facilities ⁶⁹	1,334,887.40	1,160,634.26	1,740,988.77
Expenditure	21,336,233.48	23,539,321.90	25,806,074.64
Development of methodology and Systems ⁷⁰	169,876.00	208,397.98	137,976.75
Environmental studies and analyses	224,040.00	111,435.80	130,841.53
Environmental actions in facilities in service	19,026,028.09	21,174,054.64	22,901,500.30
Prevention of contamination ⁷¹	2,115,872.72	1,429,676.30	1,960,966.65
Protection of biodiversity, landscape ⁷²	15,437,015.84	18,268,161.57	19,536,227.88
Climate change ⁷³	1,067,021.52	851,828.77	1,026,398.77
Waste reduction and management	406,118.01	624,388.00	377,907.00
Research and development	593,857.18	583,478.00	886,748.00
Training and communication	136,752.04	210,895.98	233,413.84
Environmental training and awareness programmes	16,821.35	24,285.17	54,094.84
Communication ⁷⁴	119,930.69	186,610.81	179,319.00
Environmental taxes and levies	61,294.17	282,421.26	49,921.26
Cost of personnel dedicated to activities of an environmental nature	1,124,386.00	968,638.24	1,465,673.00
	22,671,121	24,699,956	27,547,063

⁶⁹ Environmental impact studies carried out on all projects, application of preventive and corrective measures, environmental supervision at electricity facilities under construction and application of environmental improvement measures.

⁷⁰ Certifications, audits, environmental consultancy.

⁷¹ Adaptation of facilities, repair of equipment, analysis, etc.

⁷² Fire prevention (inspection of facilities, felling, pruning and clearing of vegetation for the maintenance of the safety distances, projects related to the prevention and fight against fires) line marking with bird-flight diverters, bird-nesting deterrents, management of nests, landscaping adaptation, biodiversity conservation projects, etc.

⁷³ The climate change and energy efficiency costs are bundled within the climate change section.

⁷⁴ Affiliations, congresses, brochures and reports, stands at fairs, publicity in general, collaboration and sponsorships agreements.



The following table shows the evolution of the environmental expenditure and investments in environmental aspects as a percentage of the total expenditure, and the investment in the transmission grid, respectively:

Percentage of investment and expenditure on the Environment		2017	2018	2019
Percentage of investment on the environment	Environmental investment / total investment in the transmission grid	0.32	0.30	0.44
Percentage of expenditure on the environment	Environmental expenditure / total operating costs	2.29	2.67	2.79

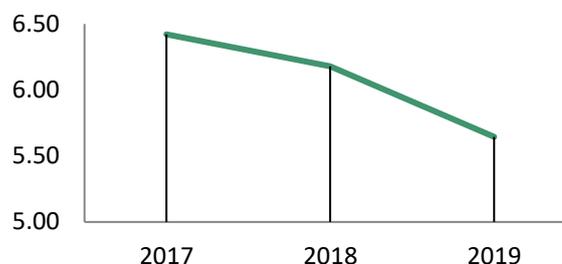


13. Performance Indicators

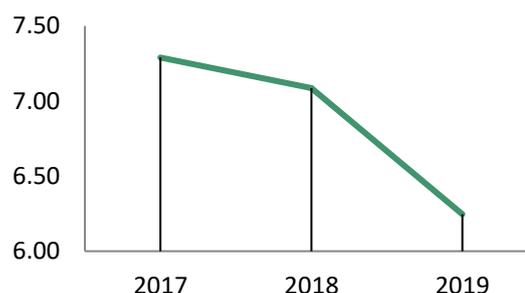
Key indicators

Energy

Electricity consumption at Head Office			
A	MWh consumed		
B	No. employees at Head Office ⁷⁵		
Indicator	A/B		
Year	2017	2018	2019
A	8,026	7,509	7,367
B	1,250	1,215	1,305
Indicator	6.42	6.18	5.84



Red Eléctrica electricity consumption			
A	MWh consumed ⁷⁶		
B	No. employees Red Eléctrica ⁷⁷		
Indicator	A/B		
Year	2017	2018	2019
A	15,177.18	14,583.57	14,516.96
B	2,082	2,058	2,164
Indicator	7.29	7.09	6.25



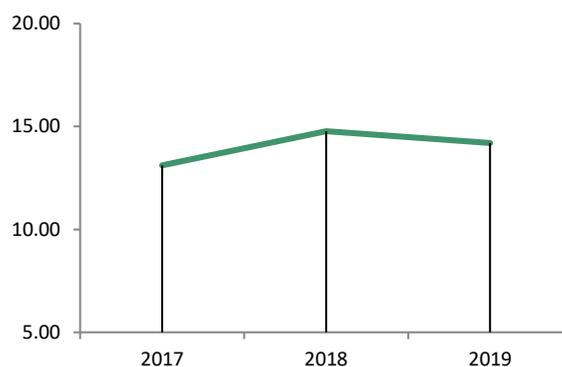
⁷⁵ La Moraleja and Albatros buildings. Includes interns, temporary employment agency workers and collaborators as they also tend to consume electricity.

⁷⁶ Includes consumption of the Head Office, the electricity control centres (centres that operate 24/7 and have special energy consumption), work centres (Regional office/work centres and maintenance centres). The consumption of electric vehicles has also been included. Since 2018 it includes the electricity consumption of telecommunications shelters (REINTEL activity).

⁷⁷ For the calculation, all personnel working in the work centres and corporate buildings (Group employees, interns, temporary employment agency workers and collaborators) are taken into account.

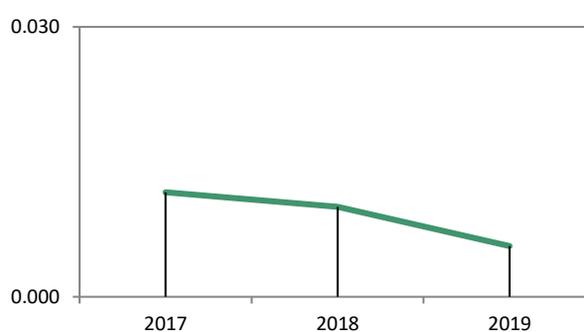


Vehicle fuel consumption ⁷⁸			
A	GJ (Gigajoules) consumed ⁷⁹		
B	Total No. of employees ⁸⁰		
Indicator	A/B		
Year	2017	2018	2019
A	22,810	22,810	25,014
B	1,741	1,630	1,762
Indicator	13.10	14.77	14.20



Materials

Paper consumption			
A	Tonnes (t) consumed		
B	Total No. of employees ⁸¹		
Indicator	A/B		
Year	2017 ⁸²	2018	2019
A	24.190	20.597	12.200
B	2,082	2,058	2,164
Indicator	0.012	0.010	0.006



⁷⁸ Fuel consumed by Red Eléctrica vehicles (fleet, shared leasing and management/executive vehicles) and diesel fuel refilled in the fuel tanks of mobile generator units.

⁷⁹ 1 kWh = 36 * 10⁶ joules; 1 litre of diesel = 37 * 10⁶ joules; 1 litre of gasoline = 34 * 10⁶, 1 litre of gas oil = 37 * 10⁶ joules; 1 litre of biodiesel = 32.79 * 10⁶ joules; 1 litre of LPG = 25.7 * 10⁶ joules

⁸⁰ Number of employees on the workforce that can use vehicles (without taking into account interns or collaborators).

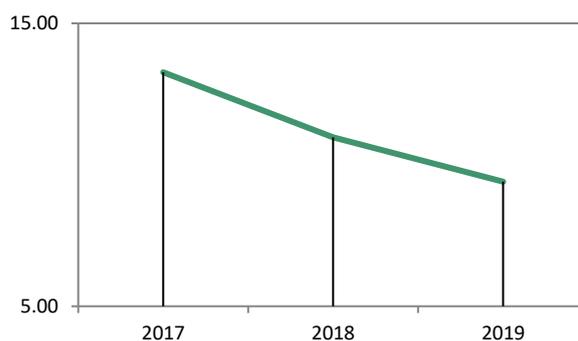
⁸¹ Includes interns, temporary employment agency workers and collaborators as they are also considered paper consumers.

⁸² In 2017, the printer service provider was not able to provide the data regarding printing on 1 or 2 sides, reporting only cumulative data since installing the printers in 2014, and it was impossible to obtain the data for 2017. For this reason, it has been estimated that in 2017 the percentage of double-sided printing was same as in 2016, 72%.

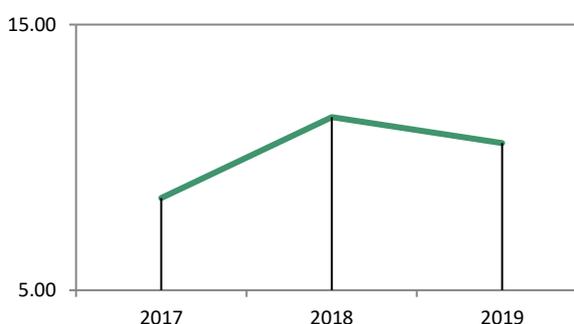


Water

Total water consumption			
A	m ³ consumed		
B	Total No. of employees ⁸³		
Indicator	A/B		
Year	2017	2018	2019
A	27,627	22,566	20,347
B	2,082	2,058	2,164
Indicator	13.27	10.97	9.40 ⁸⁴

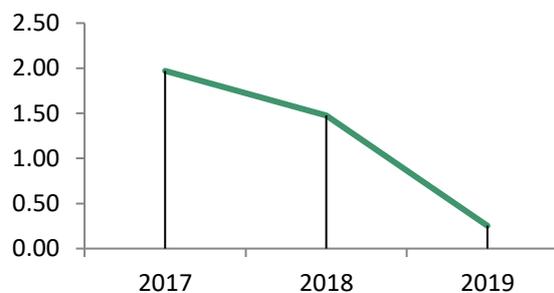


Water consumption at Head Office			
A	m ³ consumed		
B	Total employees at Head office ⁸⁵		
Indicator	A/B		
Year	2017	2018	2019
A	8,064	10,479	10,196
B	952	910	967
Indicator	8.47	11.52	10.54



Waste

Hazardous waste			
A	Tonnes (t) of hazardous waste generated		
B	Revenue (millions of euros)		
Indicator	A/B		
Year	2017	2018	2019
A	4,102,096	3,036.874	547.100
B	1,823.9	1,818.8	1,807.0
Indicator	2.25	1.67	0.30



⁸³ Taking into account all the personnel that work in the various work centres: Group employees, interns, temporary employment agency workers and collaborators.

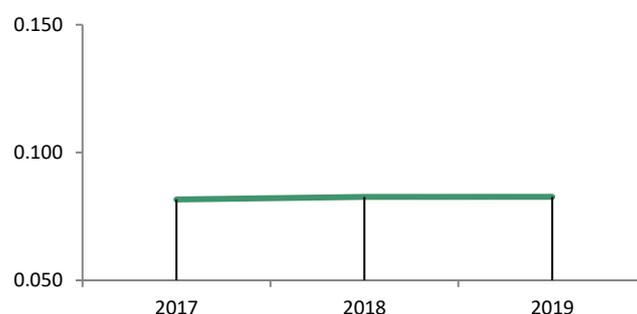
⁸⁴ The data provided has a coverage of 82%, in terms of personnel (taking into account all the staff working in the different work centres: Group employees, interns, employees from temporary staffing agencies and collaborators). The data is not available for some centres, mainly those that are not owned by the Company (rented). Water consumption per employee **for all water consumers (1,775) is 11.46 m³/employee**. In 2018, it stood at 13.22 m³/employee (1,708).

⁸⁵ The 'La Moraleja' buildings including interns, temporary employment agency workers and collaborators as they are considered water consumers.



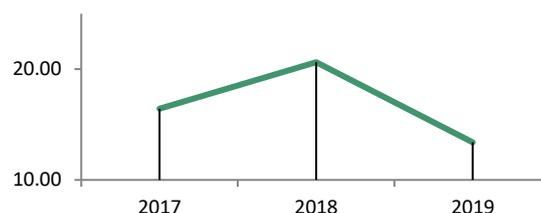
Use of land in relation to biodiversity

Biodiversity: Occupation of land ⁸⁶			
A	Surface area in Red Natura occupied by facilities ⁸⁷ (m ²)		
B	Total surface area of Red Natura (m ²) ⁸⁸		
Indicator	A/B x 100		
	Facilities		
Year	2017	2018	2019
A	182,332*10 ⁶	184,450*10 ⁶	184,811*10 ⁶
B	223,357*10 ⁷	223,210*10 ⁷	223,682*10 ⁷
Indicator	0.080	0.083	0.083



Emissions

Direct emissions of greenhouse gases (SCOPE1) + Emissions from electricity consumption (SCOPE 2 without losses) ⁸⁹			
A	t CO ₂ eq. SCOPE 1 + Emissions from electricity consumption		
B	Revenue (millions of euros)		
Indicator	A/B		
Year	2017	2018	2019
A	29,940.50	40,073.00	24,201.00
B	1,823.90	1,943.30	1,807.00
Indicator	16.42	20.62	13.39



⁸⁶ The most up-to-date database published by MITECO is used to calculate the indicators. The cartography of facilities in service is improved and updated annually, from which some variations can be derived in the calculations not related to the increase or decrease in the number of facilities.

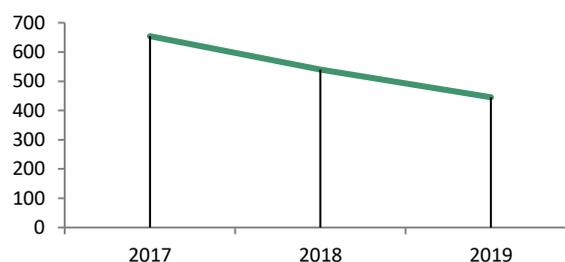
⁸⁷ Surface area occupied by lines and substations: The surface area of lines has been calculated assuming an occupation of 20m on each side of the line. It is necessary to keep in mind that the occupation is overhead; there is only actual occupation in the case of the towers. The surface area occupied by submarine cables has been estimated at 0.5 metres on each side of the line (total of 1 meter).

⁸⁸ Red Natura (Natura 2000 Network) includes: SCI (Site of Community Importance) and SPA (Specially Protected Areas for birds).

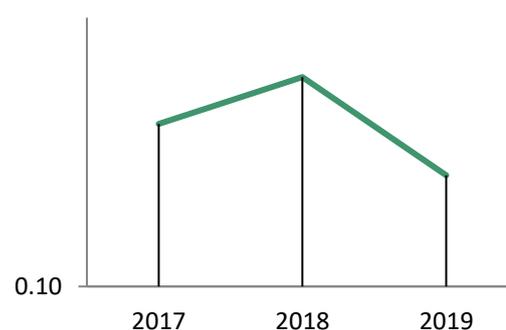
⁸⁹ Emissions of Scope 1 and 2 (not including transmission grid losses). Red Eléctrica considers it relevant to monitor this indicator, without including transmission grid losses (as it is not possible to act on them). The emissions are calculated under the 'market-based' approach, applying the emission factors associated with the market agents that supply the electricity. The emissions calculated under the 'location-based' approach would total 783,704 tCO₂eq. The calculation of emissions is performed from an operational control perspective. The information on the inventory scope and method is available on the REE website <http://www.ree.es/en/sustainability/sustainable-energy/energy-and-climate-change/our-carbon-footprint>. The emissions are calculated under the 'market based' approach, applying the emission factors associated with the market agents/traders that supply the electricity).



Emissions SCOPE 1 + SCOPE 2 including transmission grid losses ⁹⁰			
A	tCO ₂ eq (SCOPE 1 + SCOPE 2)		
B	Revenue (millions of euros)		
Indicator ⁹¹	A/B		
Year	2017	2018	2019
A	1,192,806	1,049,225	804,479
B	1,823.90	1,943.30	1,807.00
Indicator	654	540	445



% SF ₆ emissions ^{92 93}			
A	t SF ₆ emitted		
B	t SF ₆ installed ⁹⁴		
Indicator	A/B*100		
Year	2017	2018	2019
A	1.15	1.62	0.93
B	434.566	462.119	479.821
Indicator	0.27	0.35	0.19



⁹⁰ The emissions associated with the transmission grid losses, in the same way as for the emissions associated with the consumption of electricity, do not occur during the activities of Red Eléctrica de España as they take place at the various electricity generation points. For the calculation of these emissions, the emission factors corresponding to each system (peninsular, Balearic Islands or Canary Islands) are calculated by Red Eléctrica de España based on the annual generation balance. There are several reasons for the decrease in emissions in 2019. The most relevant is the decrease in the average peninsular emission factor (emission factor in t CO₂/MWh: 0.219 in 2018 and 0.165 t CO₂/MWh in 2019), which mainly reflects the drastic reduction in the share of coal-fired power stations in the energy mix (69% reduction compared to 2018). The data on emissions derived from transmission grid losses for 2018 has been modified with respect to that published in the 2018 report due to the fact that in November 2019 a relevant update was made to the data on transmission grid losses. This data is obtained from the SIMEL energy metering system, which receives the data recorded by all meters in Spain. Due to various issues, this data is adjusted and updated throughout the year, taking into consideration that the regulation contemplated a period of 11 months to close the definitive information.

⁹¹ Scope 1 and 2 emissions (including transmission grid losses). The total energy transported corresponds to the annual electricity demand measured at the power station busbars.

⁹² The most representative emissions of REE's activity are SF₆ emissions (direct) and emissions from transmission grid losses. The emission rate has been worked out based on the emission data calculated according to actual leakage records. To assess SF₆ gas emissions in relation to the total SF₆ gas installed, it is considered more appropriate to use tonnes of SF₆ emitted as the unit of measure, rather than calculate it in tonnes of CO₂ equivalent.

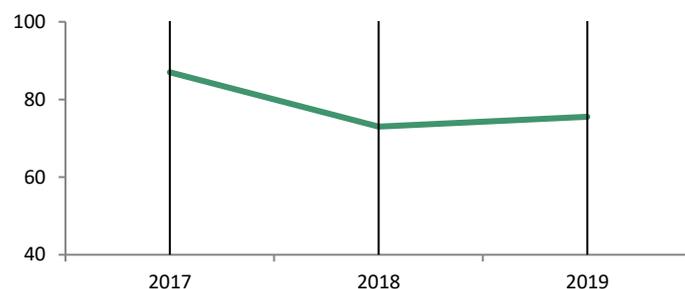
⁹³ The maximum leakage rate for in-service equipment established in the Voluntary Agreement for the management of SF₆ signed in 2015 is 0.5%. This rate is fixed for equipment commissioned as of the date the agreement was signed, which allows previously installed equipment to have higher leakage rates. The leakage rate in 2019 reflects the breakdown repair work performed since the last quarter of 2018. Of note is in 2019 there has been no accident that has led to a gas leakage.

⁹⁴ The increase in installed gas is mainly due to the commissioning of new facilities and the replacement of old equipment for SF₆ insulated equipment.

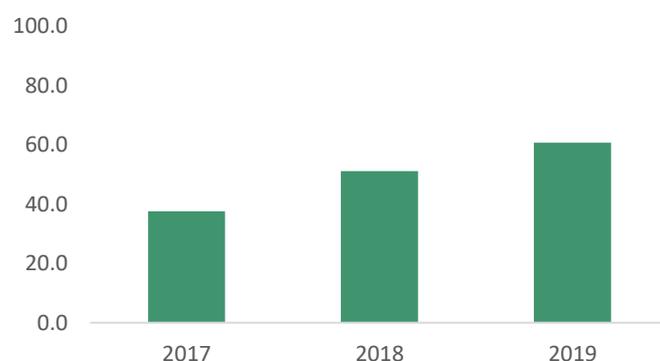


Environmental performance indicators related to the activity

% Fulfilment of the Environmental Programme			
A	Contribution of fulfilled environmental objectives		
B	Total contribution of the programme		
Indicator	A/B x100		
Year	2017	2018	2019
A	73.0	75.5	67.8
B	100	100	100
Indicator	73.0	75.5	67.8



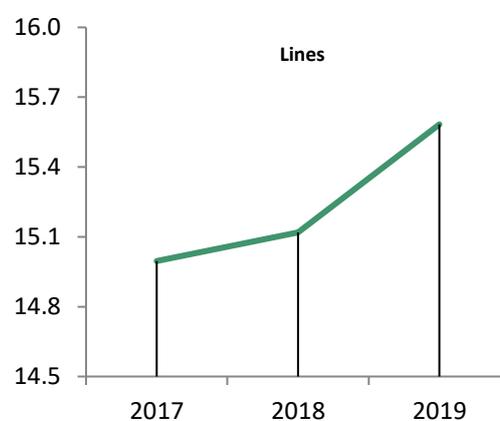
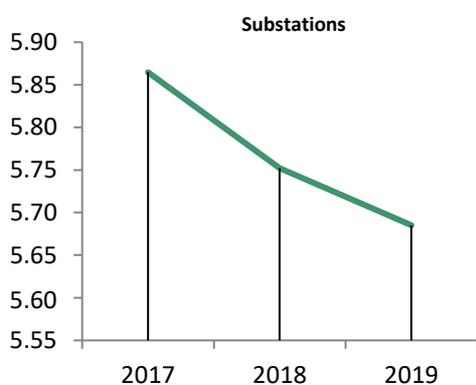
Biodiversity: % critical lines marked			
A	Km of line marked in critical areas		
B	Km of line in critical areas ⁹⁵		
Indicator	A/B x 100 (% of line in critical area marked)		
Year	2017	2018	2018
A	276.1	375.7	459.7
B	734	734	757
Indicator	37.6	51.2	60.7



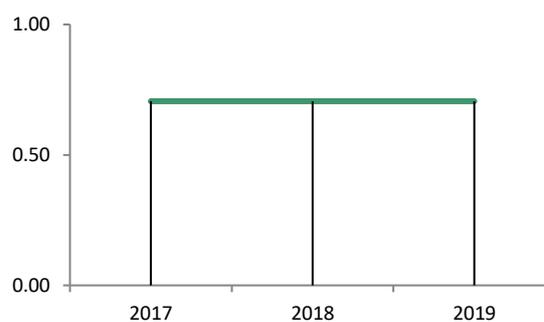
⁹⁵ The target value fluctuates slightly each year, depending on the variations in Red Eléctrica de España's facilities (new lines and changes to existing lines). The percentage of marking refers to the target value defined in each of the years.



Biodiversity: Impact of facilities						
A	Km of line in Red Natura ⁹⁶			No. of substations in Red Natura		
B	Total Km of line			Total No. of substations		
Indicator	A/B x 100			A/B x 100		
	Lines			Substations		
Year	2017	2018	2019	2017	2018	2019
A	4,736.24	4,791.28	4,924.25	39	39	39
B	31,582.86	31,689.50	31,599.53	665	678	686
Indicator	15.00	15.10	15.60	5.86	5.75	5.69



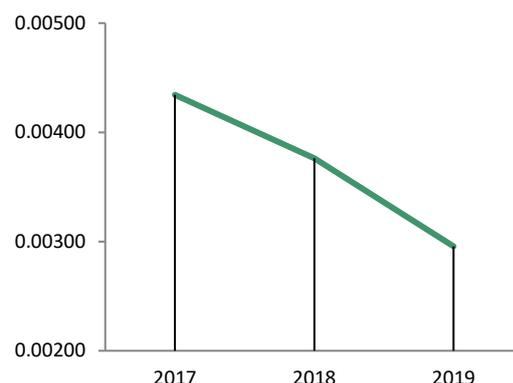
Biodiversity/Relationship with stakeholders			
A	No. of Autonomous Communities with biodiversity projects		
B	Total No. of Autonomous Communities		
Indicator	A/B		
Year	2017	2018	2019
A	12	12	12
B	17	17	17
Indicator	0.71	0.71	0.71



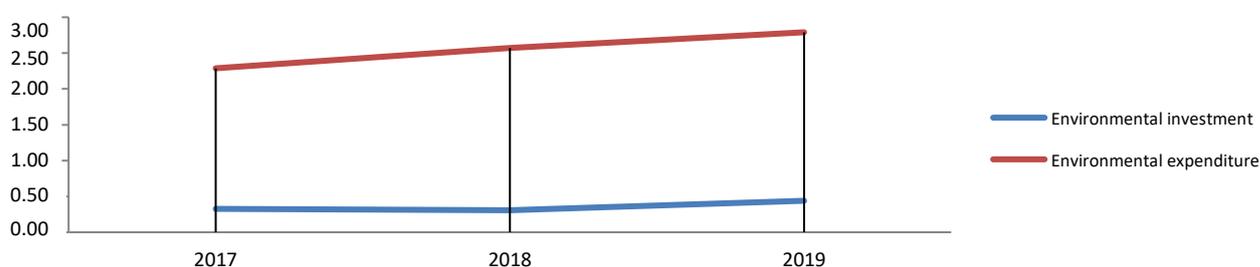
⁹⁶ Includes the total number of kilometres of submarine cable and those in Red Natura.



Emissions			
A	Indirect emissions derived from transmission grid losses (tCO ₂ eq)		
B	MWh transported		
Indicator	A/B		
	Emissions derived from transmission grid losses ⁹⁷		
Year	2017	2018	2019
A	1,162,865	1,009,953	780,865
B	267,745,348	268,387,270	264,132,778
Indicator	0.00434	0.00376	0.00296



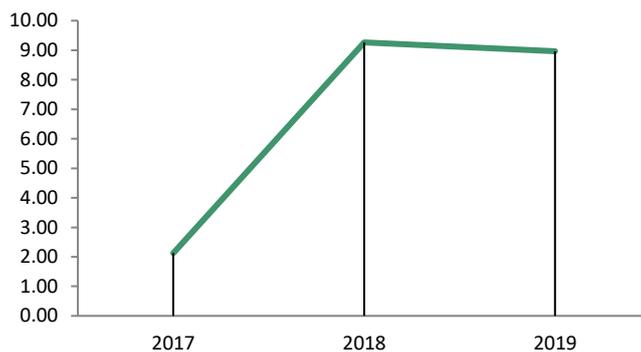
Environmental investment and expenditure						
A	Environmental investment			Environmental expenditure		
B	Total investment			Total expenditure		
Indicator	A/B x 100			A/B x 100		
	Environmental investment			Environmental expenditure		
Year	2017	2018	2019	2017	2018	2019
A	1,334,887.00	1,160,634.26	1,740,988.77	21,336,233.4	23,539,321.9	25,806,074.68
B	411,829,185	378,244,167	396,400,000	932,497,000	914,745,279	924,913,000
Indicator	0.32	0.31	0.44	2.29	2.57	2.79



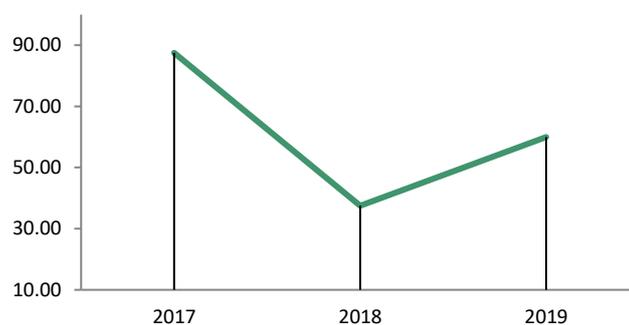
⁹⁷ The emissions associated with the transmission grid losses, in the same way as for the emissions associated with the consumption of electricity, do not occur during the activities of Red Eléctrica de España as they take place at the various electricity generation points. For the calculation of these emissions, the emission factors corresponding to each system (peninsular, Balearic Islands or Canary Islands) are calculated by Red Eléctrica de España based on the annual generation balance. There are several reasons for the decrease in emissions in 2019. The most relevant is the decrease in the average peninsular emission factor (emission factor in t CO₂/MWh: 0.219 in 2018 and 0.165 t CO₂/MWh in 2019), which mainly reflects the drastic reduction in the share of coal-fired power stations in the energy mix (69% reduction compared to 2018). The data on emissions derived from transmission grid losses for 2018 has been modified with respect to that published in the 2018 report due to the fact that in November 2019 a relevant update was made to the data on transmission grid losses. This data is obtained from the SIMEL energy metering system, which receives the data recorded by all meters in Spain. Due to various issues, this data is adjusted and updated throughout the year, taking into consideration that the regulation contemplated a period of 11 months to close the definitive information.



Training and awareness			
A	No. of employees who received environmental training		
B	No. of employees ⁹⁸		
Indicator	A/B x 100		
Year	2017	2018	2019
A	37	151	158
B	1,741	1,741	1,762
Indicator	2.13	9.26	8.97



Accidental spill of hydrocarbons			
A	No. of accidents involving oil or fuel spills from in-service transformers and equipment		
B	Total No. of accidents		
Indicator	A/B x 100		
Year	2017	2018	2019
A	7	3	6
B	8	8	10
Indicator	87.50	37.50	60.00



⁹⁸ Only REE personnel.



14. Frequency of the Environmental Impact Statement

This Report is published annually and acts as an Environmental Statement. Its purpose is to provide information to all stakeholders concerning Red Eléctrica's environmental behaviour regarding those activities carried out during 2019.

The Spanish Association of Standardisation and Certification (AENOR), with Head Offices at Génova 6 - 28004 Madrid, and Accredited Certifying Body Number E-V-0001, is the entity that verifies that the Environmental Statement of Red Eléctrica complies with the requirements set forth in Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community Eco-management and Audit Scheme (EMAS).

The next Statement will be presented and published during the first half of 2021.



Glossary of terms

Bird saving devices or 'spirals'	<p>A white or orange spiral made of polypropylene (PVC) in the shape of a spiral, measuring 30-35 centimetres in diameter and with a length of 1 metre, which is coiled around the grounding cable or conductor to mark it and alert birds to the presence of the lines in order to reduce the risk of collisions.</p> <p><i>(Own definition REE).</i></p>
Electrical field	<p>In a point in space, the force exerted on a static load located at that point. Expressed in volts per metre (V/m).</p> <p><i>(50 Hz. Electrical and Magnetic fields REE and UNESA, 1998)</i></p>
Environmental aspect	<p>An element of the activities, products or services of an organisation which has, or which may have, an impact on the environment.</p> <p><i>(Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS)).</i></p>
Environmental behaviour indicator	<p>Specific performance indicators providing information on an organisation's environmental behaviour.</p> <p><i>(Standard UNE-EN ISO 14031 Environmental management. General Guidelines).</i></p>
Environmental impact	<p>Any change in the environment, either adverse or beneficial, that is caused in full or in part by the activity, products or services of any organisation.</p> <p><i>(Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS)).</i></p>
Environmental management system	<p>That part of the general management system that includes the organisational structure, planning of activities, responsibilities, good practices, procedures, processes and resources to develop, apply, achieve, revise and maintain the environmental policy and manage the environmental aspects.</p> <p><i>(Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS)).</i></p>
Environmental objective	<p>A general environmental objective, which originates from the Environmental Policy and is set out as a goal to be fulfilled by the organisation and which, insofar as is possible, is measured.</p> <p><i>(Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS)).</i></p>
Environmental policy	<p>The general management and intentions of an organisation with respect to its environmental behaviour, put forward officially by its management teams, including compliance with all the regulatory provisions applicable to environmental matters, as well as the commitment to continuously improve environmental behaviour. It constitutes a framework for the company's actions and for establishing environmental targets and objectives.</p> <p><i>(Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS)).</i></p>



Magnetic field	<p>In a point in space, the force exerted on a live element located at that point. Expressed in amperes per metre (A/m). The international measuring unit is Tesla (T) or any fraction thereof, and in particular the microtesla (μT).</p> <p><i>(50 Hz. Electrical and Magnetic fields. REE and UNESA, 1998).</i></p>
Nesting deterrent	<p>A device comprised of several elements made of galvanised steel, and of different sizes, that deters birds from nesting or perching in the places where it is installed or on the actual device itself.</p> <p><i>(Own definition of REE).</i></p>
Red Natura 2000	<p>The European Natura 2000 Ecological Network is a coherent environmental network comprised of Sites of Community Importance whose management shall take into account the economic, social and cultural requirements, as well as the special regional and local characteristics. These sites are later designated as either Special Areas of Conservation (SACs) or Special Protection Areas (SPAs) for Birdlife.</p> <p><i>(Law 42/2007 of 13 December, on Natural Heritage and Biodiversity).</i></p>
Significant environmental aspect	<p>An environmental aspect that has, or which may have, a significant impact on the environment.</p> <p><i>(Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS)).</i></p>
Special Area of Conservation (SAC)	<p>An area which, based on the biogeographic region or regions to which it belongs, contributes greatly to maintaining or restoring a type of natural habitat (...) in a favourable state of conservation so that it can help considerably in establishing the cohesion of Natura 2000 (...) and/or contributes noticeably to maintaining biological diversity in the biogeographic region or regions in question. For the animal species occupying large areas, the special areas of conservation will usually correspond to specific locations inside the area in which that species is naturally distributed, presenting the physical or biological elements that are essential for them to live and reproduce.</p> <p><i>(Directive 92/43/EC, of May 21, on the Conservation of Natural Habitats and Wild Fauna and Flora).</i></p>
Special protection Area (SPA) for Birdlife	<p>An area of community interest for the protection of bird species listed in Annex I of the Council Directive 79/409/EEC of 2 April 1979, on the conservation of wild birds.</p>
Visual simulation	<p>An infographic technique (based on computer applications for graphic representation) applied in order to obtain a visual representation of a project, providing an approximate idea of what it will truly look like once completed, and showing the elements that it is comprised of, as well as its integration into its environment.</p> <p><i>(Own definition REE).</i></p>
Waste	<p>Any substance or object belonging to any of the categories established in the appendix to the Waste Act, in which the owner disposes of or has the intention to dispose of it. In all cases, the items listed in the European Waste Catalogue (CER) will be classified as such. (Law 10/1998, 21st April, on Waste).</p> <p><i>(Law 22/2011, 28 July, on Waste and Contaminated Soils).</i></p>



Statement from the Verification Agency

In order to keep RED ELECTRICA's stakeholders informed about the Company's environmental performance during 2019, the Environmental Statement has been published, warning all stakeholders that the information reflected in this document **HAS NOT YET BEEN VERIFIED.**

The verified EMAS Environmental Statement will be available during the month of December 2020.

This is due to the situation generated as a consequence of the pandemic caused by COVID-19 and the consequent state of emergency that was declared, which has led to the verification of the Company's EMAS Environmental Statement for 2019 by the verification body AENOR being postponed until November 2020.



Annex: Environmental Actions 2019

Construction or modification of facilities

Protection of flora and fauna

Protection of flora: Noteworthy preventive and corrective measures
To avoid impacts on flora
Dismantling and assembly/hoisting of 6 towers by helicopter on the 220 kV Güeñes-La Jara 1 line, to prevent the opening of accesses and earthworks for temporary occupation zones in steeply sloping forested areas.
Marking off of the area to avoid affecting <i>Caralluma bruchardii</i> (an endangered species of flowering plant according to the Catalogue of Endangered Species of the Canary Islands), and removal of stones with lichens for their subsequent reuse for the restoration of the areas affected, in the reconfiguration of the incoming/outgoing feeder lines of the La Oliva substation, and the modification of the incoming/outgoing feeder lines of the 66 kV Corralejo substation.
Hanging of line by helicopter between the towers 73 and 85 of the 132 kV Puerto del Rosario-La Oliva line, to prevent degradation of the rough and barren landscape.
Protection and respect for riverside flora in the Special Area of Conservation (SAC) of the Tambre Estuary and the Sar and Ulla Rivers as well as the management of waste from excavation and drainage works to minimise runoff in the vicinity of the 220 kV Lousame-Mazaricos line.
Maintenance work on the vegetation screen of the Camino de Santiago for the span between towers 54-55 of the 400 kV Boimente-Pesoz line, consisting of the clearing of the planted.
Hoisting works with a boom crane for the 155-5 and 155-6 towers of the 400 kV Ciudad Rodrigo-Almaraz-Hinojosa incoming/outgoing feeder lines.
Reduction of the surface area of the worksites (25x25 m) for the 220 kV Puente Bibey incoming/outgoing feeder lines.
Transplanting of Holm oaks that were growing around the platform for tower 3.1 and the marking off of Holly trees in the vicinity of tower 1.1 and for the span between towers 1.2-2.1 of the 400/220 kV incoming/outgoing feeder lines for the Soto de Ribera substation (line compaction), in order to avoid affecting this flora during the civil works and the opening up of access routes.
Installation of a straw filter and a breakwater between towers 237 and the River Luna to prevent the increase of suspended particles in the river due to the work on the 220 kV Villablino-Telleo line.
Planting of 60 European white birch (<i>Betula celtiberica</i>) and 63 Pyrenean oak (<i>Quercus pyrenaica</i>) on the embankment section of the common access path to towers 252, 253 and 254 and the planting of species common to the surrounding area on the 220 kV Villablino-Telleo line.
Restoration of the plinths of the old 108Bis, 109, 110 and the new 109 tower. Access to the old 108Bis tower has been closed off (the tower has been removed) and the accesses to towers 109 and 110 have been restored, all of them located in the Las Ubiñas - La Mesa Natural Park, of the 400 kV Lada-Pola de Gordón 1 line.
Felling works located near to spans 542-543 and 547-548 of the 220 kV Begues-Can Jardí line, for the project to increase line power capacity, which is being carried out outside of the breeding season of the Bonelli's eagle (<i>Aquila fasciata</i>). Subsequently, the road built to transport out the waste from the felling works was eliminated and the area was restored, so that vehicle access to the area surrounding the breeding zone is prevented.
The road built to transport out the waste from the felling works was eliminated and the area was restored, in order to prevent vehicle access to a Bonelli's eagle breeding area located in the vicinity of the 220 kV Begues-Can Jardí line.
Selective felling to avoid affecting riverside flora during preliminary geotechnical works for the new 220 kV Luminabaso substation.



Habitat Protection: Noteworthy preventive and corrective measures

Incoming/outgoing feeder lines of the Soto de Ribera substation of the 400 kV line: the accesses designed in the project have been respected, only being used by the contractors and thus reducing the impact on the community habitats included in Law 42/2007, of 13 December, on Natural Heritage and Biodiversity. Holly shoots that were growing in the accesses have been transplanted elsewhere. Two Holly trees were marked off in the vicinity of the plinth of tower 1.1 and another two in the space between towers 1.2 and 2.1, in order to avoid affecting this flora during the civil works and the opening up of access routes.

Incoming/outgoing feeder lines of the Regoelle substation of the 220 kV Mesón-Dumbría line: the designed accesses have been respected, thus reducing the impact on the priority habitat 4020* Atlantic wet heathlands in temperate zones of Dorset heath heather (*Erica ciliaris*)

The 400 kV Baza-Caparacena line: Maltese mushroom plants (*Cynomorium coccineum*) have been protected around tower T-4 as well as small flowering plants (*Clypeola eriocarpa*) in the area of tower T-90. Phoenician juniper (*Juniperus phoenicea*) were located and marked off in the area of tower T101. Hanging of line by hand in those spans located in areas with difficult access due to its orographical features or Habitats of Community Interest.

Incoming/outgoing feeder lines of the La Oliva substation and modification of the 66kV Corralejo line: an endangered cactus-like plant species (*Caralluma bucardii*) was marked off.

The 132 kV La Oliva-Puerto del Rosario line: Previous prospecting works were carried out so as not to affect protected species. The area contain flora that was affected is minimal. Furthermore, unique plant specimens, such as balsam spurge (*Euphorbia balsamifera*), which could have been affected by the works, were transplanted elsewhere.

Protection of fauna: Noteworthy preventive and corrective measures

Biological stoppages of between two and seven months in the construction works of eleven facilities due to the presence of protected species.

Specific in-the-field control (between two and five months) for two lines due to the presence of Iberian parsley frogs (*Pelodytes ibericus*) and bats.

Protection of the Bonelli's Eagle (*Aquila fasciata*) breeding area by putting up signage and eliminating the existing access.

Installation of nesting deterrents on the 13 towers of the incoming/outgoing feeder lines of the Ciudad Rodrigo substation of the 400kV Almaraz-Hinojosa line.

Installation of a nest for the Peregrine falcon (*Falco peregrinus*) on the 400 kV Almaraz-Hinojosa line.

Installation of nests for Common kestrels (*Falco tinnunculus*) on the gantries located within the 220 kV Sant Just substation.

Installation in the Tafalla substation (Navarra) of a base station for collecting data on the movements of Lesser Kestrel (*Falco naumanni*).



Archaeological heritage

Protection of archaeological-ethnological heritage	
Incoming/outgoing feeder lines of the 400 kV Soto de Ribera substation	<p>Two preventive measures were carried out:</p> <ul style="list-style-type: none">• Access via the road at the foot of Castro de Pico Castiellu was avoided.• No cobbled or old sections of the Camino Real (an ancient road) to Oviedo via Carrera and Soto de Ribera were used as access routes. <p>As for the towers in archaeological sites of lithic materials on the surface, initial archaeological probing works were carried out that showed the stratigraphy and helped to orientate the excavation works. Afterwards, pickling (a process to remove impurities) was carried out with the removal of the humic layer.</p>
Incoming/outgoing feeder lines of the Son Moix substation on the 220kV S.Reus-Valldurgent line.	<ul style="list-style-type: none">• Restoration of the access road to the towers, where there were old cartwheel tracks/ruts. In 2019, work was carried out to restore the road and the tracks were analysed and catalogued and the local administration was informed, and they will proceed to conduct an inventory and protect the roads.



Biodiversity Action Plan (2017 - 2021): Biodiversity challenges

Improve the management of biodiversity in the Company, incorporating new approaches and expanding its scope				
Most relevant actions	Progress made in 2017	Progress made in 2018	Progress made in 2019	2021 Goals
<ul style="list-style-type: none"> Definición de nueva metodología de evaluación en proyectos de inversión. Definition of a new assessment methodology for investment projects. Promoting the management of biodiversity in the Group's subsidiaries. Extending commitment to the supply chain. 	Actions underway.	<ul style="list-style-type: none"> Definition of a new methodology for assessing the impact of investment projects on natural capital. Definition of biodiversity conservation criteria for the selection of suppliers. 	Design of a methodology for the analysis and responsible assessment of natural capital, based on ecosystem services and tested in a practical business case.	Completion of the three proposed actions.

Make facilities compatible with biodiversity				
Most relevant actions	Progress made in 2017	Progress made in 2018	Progress made in 2019	2021 Goals
Birdlife: Multi-year line marking plan.	38% of critical priority areas marked.	51% of critical priority areas marked.	60.7% of critical priority areas marked.	100 % critical priority areas marked by 2023.
Forested areas: Signing of agreements for the prevention of forest fires.	12 agreements in force.	13 agreements in force.	10 agreements in force and 3 in the process of being renewed.	21 agreements in force (nationwide).
Habitat of high ecological value: HABITAT Project.	Obtaining field-validated mapping for 16 Autonomous Communities.	Field-validated mapping for all the Autonomous Communities (30,361 ha of Priority HCIs beneath overhead electricity lines, 11,000 ha with a high conservation status).	Standardisation of the mapping of the different Autonomous Regions. Integration into the mapping database.	Mapping designed, field-validated state of conservation and management plans for the conservation of the habitats identified in all the Autonomous Communities.



Promote biodiversity conservation				
Most relevant actions	Progress made in 2017	Progress made in 2018	Progress made in 2019	2021 Goals
Participation in wildlife conservation projects (especially birdlife) and flora.	11 birdlife projects (on focal species) in force.	12 birdlife projects (on focal species) in force.	15 birdlife projects (on focal species) in force.	6 annual projects in force, 5 of them on focal species.
Red Eléctrica Forest.	Surface area recovered: 778 ha recovered. Investment: 1,843,941 euros.	843 ha recovered. Investment: 2,126,327 euros.	843 ha recovered. Investment: 2,126,327 euros.	Exceed 1,000 ha recovered and reach a total investment of 2,500,000 euros.
Red Eléctrica Marine Forest.	Agreements signed with the CSIC and the Government of the Balearic Islands.	1 ha planted.	1.5 ha planted.	Development of the Posidonia forest: planting of 2 ha.

Raise awareness on Red Eléctrica's stance on biodiversity matters				
Most relevant actions	Progress made in 2017	Progress made in 2018	Progress made in 2019	2021 Goals
Increase employee awareness.	Publication of information related to biodiversity on the corporate intranet.			Publication of internal news and the carrying out of specific campaigns.
Promote corporate volunteering in the field of biodiversity.	Volunteering actions within the framework of the Red Natura 2000 day.	Volunteering actions: European Red Natura 2000 day; Libera Project campaigns; REE Asturias Forest; Workday for the removal of invasive flora in Valencia.	Red Natura 2000 campaign; Libera project campaigns; Limne Foundation; Oceans Day; Scopoli's s Shearwater Release project.	Development of new actions (at least one a year).
Increase the Company's external visibility with regard to biodiversity.	Dissemination of projects in the press and on social networks, publication of brochures and videos and participation in forums and specialised working groups.			New informative products and participation in events related to biodiversity (at least 2 per year).

Promote innovation in biodiversity matters				
Most relevant actions	Progress made in 2017	Progress made in 2018	Progress made in 2019	2021 Goals
Implementation of innovation projects that contribute to the achievement of biodiversity challenges.	<i>Biotransporte</i> Project. <i>Vegeta</i> Project.	<i>Biotransporte</i> Project <i>Vegeta</i> Project Prodint Project.	<i>Vegeta</i> Project Prodint Project. Project for the assessment of natural capital.	Minimum of three innovation projects implemented in the period.



Waste management 2019

The data and the evolution of waste generation and its final destination in the last three years can be seen below:

Treatment method	HAZARDOUS WASTE					
	2017	2018	2019	2017	2018	2019
	kg	kg	kg	%	%	%
Elimination	291,248.89	985,949.00	252,612.00	7.10	32.47	46.17
Recycling	2,982,224.52	1,491,162.50	293,670.00	72.70	49.10	53.68
Regeneration	799,908.92	535,600.00	818.00	19.50	17.64	0.15
Reuse	0.00	14,840.00	0.00	0.00	0.49	0.00
Waste-to-Energy (Energy recovery)	28,714.68	9,323.00	0.00	0.70	0.31	0.00
Total	4,102,097.00	3,036,874.50	547,100.00	100.00	100.00	100.00

Treatment method	NON-HAZARDOUS WASTE					
	2017	2018	2019	2017	2018	2019
	kg	kg	kg	%	%	%
Elimination	893,666.40	171,463.00	152,968.00	48.30	11.27	21.28
Recycling	925,120.50	1,349,467.00	534,993.50	50.00	88.71	74.41
Regeneration	3,700.48	0.00	0.00	0.20	0.00	0.00
Reuse	0.00	0.00	30,400	0.00	0.00	4.23
Waste-to-Energy (Energy recovery)	27,753.62	220.00	625.00	1.50	0.01	0.09
Total	1,850,241.00	1,521,150.00	718,986.50	100.00	100.00	100.00



Total quantities managed by waste type (t)

Non-hazardous waste	Quantities managed (t)		
	2017	2018	2019
Septic tank sludge	532.3	709.0	149.9
Metallic waste not contaminated with hazardous substances	161.7	210.1	215.1
Inert waste	956.0	555.9	285.0
Paper and cardboard	61.1	21.455	25.5
Toner and printer inks ⁹⁹ (kg)	15 kg	12 kg	40 kg
Wood, pallets and bobins	110.2	15.2	21.3
Vegetable waste ¹⁰⁰	15.2	36.7	0.0
Non-hazardous electrical and electronic waste	0.4	1.5	2.2
Plastics	16.1	7.4	14.9
Glass (kg)	385 kg	0 kg	0 kg
Vegetable cooking oils	3.7	0.0	0.0
Alkaline batteries - Non-Mercury (kg)	153 kg	37 kg	83 kg
Absorbent and filtering materials ¹⁰¹ - Silica gel and other inorganic chemicals ¹⁰²	0.27	0.80	1.30
Saturated or used ion exchange resins ¹⁰³	6.9	0.0	0.0
Large volume waste	1.1	0.0	0.0
Glass (municipal waste)	0.38	0.00	3.46
Packaging (kg)	0.0	0.0	6.5
Total	1,850.2	1,521.4	718.9

⁹⁹ The management of toner and ink corresponds to the company that supplies and services the printer. Only units purchased directly by Red Eléctrica are taken into account.

¹⁰⁰ This item is not taken into consideration in the calculation of the total non-hazardous waste. This value is not significant due to the fact that the greater part of this waste is incorporated into the land or given to landowners. The table includes exclusively that waste delivered to a waste management company.

¹⁰¹ Waste introduced in 2016; this type of waste was not generated in 2018.

¹⁰² This waste item was incorrectly accounted for in previous years in the hazardous waste section.

¹⁰³ Waste introduced in 2017; this type of waste was not generated in 2018.



Hazardous waste	Quantities managed (t)		
	2017	2018	2019
Used oil	657.673	425.054	97.016
Oils with PCBs ¹⁰⁴	0.00	0.00	0.00
Oil/water mixture	182.40	233.10	64.30
Diesel/water mixture	0.00	1.240	0.00
WEEE- Transformers and equipment with PCBs ¹⁰⁵	12.60	11.30	13.30
Hazardous electrical & electronic waste: equipment containing oil	2.75	1.58	141.63
Hazardous electrical and electronic waste: Other	31.00	0.97	2.98
Nickel-cadmium accumulators	54.10	24.50	16.80
Lead batteries	0.50	4.40	5.40
Earth impregnated with hydrocarbons	264.60	702.20	189.18
Containers that have contained hazardous substances	4.60	8.50	2.60
Absorbent materials, filtering materials, cleaning rags/cloths and protective clothing contaminated with hazardous substances	29.90	8.30	6.10
Non-halogenated solvents	10.10	0.00	0.00
Halogenated solvents (kg)	0 kg	0 kg	145 kg
Water-based cleaning liquids (kg)	0 kg	0 kg	0 kg
Paint waste	0.20	0.60	0.065
Insulation material (with or without asbestos)	12.10	1.70	1.97
Laboratory chemical products containing hazardous substances	0.80	0.50	0.34
Gases in pressurised containers ¹⁰⁶	3.80	9.40	3.74
Anti-freeze containing hazardous substances (kg)	20 kg	0 kg	6 kg
Florescent tubes	0.90	0.92	1.50
Batteries (kg)	33 kg	1 kg	0 kg
Fuel oil and diesel	0.00	0.70	0.00
Oil-filled cable (hydrocarbon) ¹⁰⁷	91.37	0.00	0.00
Waste coming from adhesives and sealants containing organic solvents or other hazardous substances ¹⁰⁸	0.00	0.00	0.00
Metal contaminated with hazardous substances. Includes contaminated cables ¹⁰⁹	0.00	26.00	0.00
Total (t)	4,102.1	3,036.9	547.1

¹⁰⁴ Once the elimination/decontamination plan for transformers, equipment and oil containing PCBs was completed in 2010, the amounts that are now generated are caused by the removal of old sealed equipment that is contaminated at the end of its useful life. In 2018, 11,268 Kg of equipment contaminated with PCBs was managed.

¹⁰⁵ See previous note.

¹⁰⁶ The handling of used SF₆ gas that is out of specification, consisting of the regeneration of gas for reuse, takes place outside Spain. This means that 0.30% of total hazardous waste has been transported internationally.

¹⁰⁷ New waste introduced in 2017. Included in 2018 in the category 'Metals contaminated with hazardous substances. Includes contaminated cables'.

¹⁰⁸ Waste introduced in 2016.

¹⁰⁹ Includes contaminated cables in 2018.



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This English version is a translation of the original and authentic Spanish text found in RED ELÉCTRICA'S '*DECLARACIÓN AMBIENTAL EMAS 2019*', originally issued in Spanish. In the event of discrepancy, the Spanish-language version shall prevail.