RED ELÉCTRICA
DE ESPAÑA

EMAS ENVIRONMENTAL STATEMENT 2016

May 2017

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1. WHO IS RED ELÉCTRICA

Red Eléctrica de España is the sole transmission agent and operator (TSO) of the Spanish electricity system. The Company carries out this mission with transparency, neutrality, independence and economic efficiency with the aim of providing an electricity service of the highest quality for society as a whole.

Red Eléctrica, as TSO of the Spanish electricity system has the task of ensuring the correct functioning of the electricity system and the proper coordination of the power generation and transmission systems. In addition, it is responsible for the transmission of high voltage electricity and builds, maintains and operates the transmission grid facilities.

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 transmission[1].

As **operator** of the Spanish electricity system, Red Eléctrica establishes the forecasts for the electricity demand and operates the electricity generation and transmission facilities in real time, ensuring at any given moment that the scheduled production in the power stations coincides with the demand of the consumers. Red Eléctrica carries out its operational functions in the peninsular system as well as in the non-peninsular systems, under the principles of transparency, objectivity and independence becoming a worldwide reference in the safe integration of renewable energy into the electricity system.

As **transmission agent**, we perform this function under a regime of exclusivity, managing electricity transmission from the generation centres to the consumption zones. Similarly, the Company has the responsibility to develop, expand and maintain the transmission grid under homogenous and coherent criteria. It is also responsible for managing the transmission of electricity between external systems and ensuring third-party access to the grid on equal terms.

Our facilities consist of electricity control systems that direct and supervise the operation of the system; 43,664 kilometres of high voltage transmission line circuit and 5,489 substation bays with a transformer capacity of 85,144 MVA.

Evolution of the facilities (*)		2014	2015	2016
Lines (km of circuit)	**Kilometres of circuit**	**42,572**	**42,989**	**43,664**
	400 kV	21,094	21,184	21,620
	220 kV and less	21,478	21,806	22,044
Substations	**Number of bays**	**5,292**	**5,428**	**5,489**
	400 kV	1,394	1,441	1,458
	220 kV and less	3,898	3,987	4,031
	Transformer capacity (MVA)	**83,939**	**84,544**	**85,144**

(*) Data corresponding to the last three years - revised and updated in 2016.

[1] *Clasificación Nacional de Actividad Económica – CNAE* (Standard Industrial Classification) 35.12: Electricity transmission.

2. ENVIRONMENTAL MANAGEMENT AND POLICY

❖ ENVIRONMENTAL POLICY (*)

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 responsibilities and functions.

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.
- Guarantee **continual improvement**, the **prevention of contamination** and the **principle of precaution**, according to the objectives and capacities of the 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 which is integrated into the landscape**.
- 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.
- Maintain means and channels of **communication** for informing and communicating with all interested parties regarding environmental related actions whilst promoting **collaboration frameworks** with stakeholder groups.

- Consider the environmental policies and requirements as one of the criteria in the selection and evaluation of **suppliers**.

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

❖ 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 pollution 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 hard to make them compatible with the environment, considering their entire life cycle and paying particular attention to biodiversity conservation.

Furthermore, Red Eléctrica is committed to a sustainable energy model, hence undertaking a specific commitment with climate change and energy efficiency.

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 Chairman who holds the maximum responsibility regarding the environment.

The involvement of all organisational units and the commitment of all those working in the Company are essential for the development of an adequate environmental management.

In order to provide technical support there is a specific Environment Department, which in December 2016 was made up of 35 professionals with varying backgrounds and experience and who are environmental experts that actively support all the organisational units from the Head Office and the territories in which the facilities are located. The territorial areas are responsible for the onsite environmental control of each of the phases of Red Eléctrica's facilities whether it be project definition, construction or maintenance.

The focused effort of Red Eléctrica to become a model company that is responsible, efficient and sustainable has been recognised by leading sustainability rating agencies and the Company is present in some of these indexes based on the results they obtain, among the indexes of note are:

- **Dow Jones Sustainability Index**
- **FTSE 4 Good**
- **MSCI** (Morgan Stanley Capital International)

Among the awards and recognitions received by Red Eléctrica for their environmental management in 2016 the following are noteworthy:

- Inclusion in the **CDP Leadership Index** (A list). The Company has been recognised as part of the group of leaders, for its efforts and actions to combat climate change.

- Maximum score in the **Dow Jones Sustainability Index** under the Climate Strategy criteria.

- **Sustainable Development Award** awarded by the Ministry of Water, Agriculture and Environment of the region of Murcia to companies whose projects and initiatives contribute to the sustainability of the environment. In the section on generation and maintenance of carbon sinks, Red Eléctrica was recognised for including the Sierra del Molino mountain range in Calasparra in the 'Red Eléctrica Forest' initiative, which has resulted in the creation of a carbon sink of 18 hectares (22,000 trees and shrubs).

- The Real-Time Automatic Management project of the El Hierro Hydro-wind Power Station (noteworthy 'Red Eléctrica eficiente' project in 2016) was submitted as a candidate in the 'Good Practice of the Year' 2016 and received the 'Commendable practices' mention. Awarded by the **Renewables Grid Initiative**.

More information at www.ree.es, in the Corporate Responsibility section.

❖ ENVIRONMENTAL MANAGEMENT SYSTEM

Red Eléctrica has a certified Environmental Management System (EMAS) in accordance with UNE-EN ISO 14.001:2004 (in the process of adaptation to the new standard UNE EN-ISO 14001: 2015), certified since May 1999 and which, since October 2001, has been registered under the Community Eco-management and Audit Scheme (EMAS) with registration number **Nº ES-MD-000313** (*previously ES-SB-000013*).

EMAS is part of a Comprehensive Management System comprised of Quality, Health & Safety, Corporate Responsibility, Energy Efficiency and Environment, which enables the Company to:

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

This model therefore involves the integration of all those areas that are common in the different norms that must be complied with by the three management systems, namely:

- Management of internal norms
- Qualification of personnel
- Operational control
- Audits
- Control of non-compliance and corrective actions
- Training and Communication

- Risk management
- Emergency plans and response capability
- Supplier qualification

Specifically, the EMAS comprises all the activities performed by Red Eléctrica, 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.

During all the activities carried out in the development and implementation phases of the transmission grid infrastructure (essentially, the **definition of the project, construction/modification and maintenance of the infrastructures**), we identify and evaluate the direct and indirect environmental aspects that can interact with the environment and that may generate some type of negative impact, in either normal or abnormal functioning conditions. There is also an ongoing dialogue with stakeholders prior to defining the project and also during the drafting process.

In order to identify, evaluate and register the environmental aspects, and to be aware of the applicable legal requirements to be applied to each one, it is necessary to indicate that the system presents differences among its various phases:

In the specific case of the identification and evaluation of aspects, the following are outlined:

- ✓ **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 facility projects, are identified in the corresponding environmental impact study and the appropriate environmental impact statement or resolution. Also set out are 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 of 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 evaluation of aspects, under both normal and abnormal conditions are: magnitude and intensity.

- ✓ **Maintenance of infrastructure**: 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 aspect with respect to a higher level of evaluation (maintenance phase), or at lower levels (regional centre and/or logistical building/centre). 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:

- Normal and abnormal conditions: Magnitude, nature/sensitivity and prevention.
- Abnormal conditions: Probability of occurrence and of consequence.

On the other hand, in the case of the legal, regulatory and other requirements, Red Eléctrica undertakes, as part of the Environmental Policy of the Group, the commitment on compliance with the environmental legislation, regulation and norms applicable to the activities it carries out.

In order to identify and assess the legal environmental requirements that apply to the different stages of development and implementation of transmission grid infrastructure within its respective spheres (European, state, regional and local), the following procedures are carried out:

- ✓ **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 EMP (Environmental Monitoring Programme) if deemed necessary. 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.

- ✓ **Maintenance of infrastructure:** during the maintenance of infrastructure/facilities, apart from the applicable regulations, environmental requirements are identified in the EMP for the operation phase (in facilities with 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 marked 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.

The Environmental Department analyses the results of the legal compliance reports and establishes solutions in cases where deviations occur with respect to what was foreseen. Depending on the case, objectives and goals will be established within the environmental programme, or corrective actions will be set 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 undertaken by Red Eléctrica.

- *Changes in the documentation of the environmental management system 2016*

During 2016 many of the EMAS 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	Edition date	Approval date	Cancels
EA008	Environmental specifications for conducting environmental assessment studies for projects	2	09.03.16	04.05.16	Edition 1
IA004	Environmental inspection of in-service substations	4	03.10.16	04.10.16	Edition 3
EA004(*)	Environmental specifications of work conducted on substations, lines and buildings	4	07.02.17	10.02.17	Edition 2
IA019	Forestry management related to the transmission grid	1	03.10.16	04.10.16	--
IA015	Environmental supervision of work conducted on substations, lines and buildings	4	03.10.16	04.10.16	Edition 3

(*) Included after being approved at the start of 2017

The following documents were also updated and generated by other organisational units regarding the rules of the environmental management system:

Code	Title	Edition	Edition date	Approval date	Cancels
GN15	Comprehensive risk control and management	5	23.11.16	01.12.16	Edition 4
IT347(*)	High-voltage electricity line route study	2	21.12.15	29.01.16	Edition 1
IT349(*)	Distribution method for high-voltage electricity line towers	2	21.12.15	29.01.16	Edition 1
IT451	Management of SF6 gas incidents in switchgear	1	08.11.16	20.12.16	--
GN00	Crisis management (Pre-alert, alert and emergency)	3	20.09.16	04.10.16	Edition 2

(*) Included after being approved at the start of 2016

The following documentation regarding the environmental management system has been cancelled or nullified:

Code	Title	Edition	Edition date	Approval date	Changed to
GA02	Internal and external communication of an environmental nature	4	28.02.07	A-02.04.07	Integrated Manual
EA010	Environmental specifications for line maintenance work	2	09.03.15	A-13.03.15	EA004

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') Nº 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 ('Digame')*

And that are performed at:

- ✓ **Moraleja Head Office**: Paseo Conde de los Gaitanes, 177. 28109 - Alcobendas (MADRID)
- ✓ **Albatros Head Office**: C/ Anabel Segura 11, 28109 - Alcobendas (MADRID).
- ✓ **CECORE**: Parque Technological de Madrid, C/Isaac Newton, 13 Edificio REE. 28760 –TRES CANTOS (MADRID).
- ✓ **System Operation Department of the Balearic Islands**: Camino Son Fangos, 100 Edificio A - 2ª planta. 07007 - PALMA DE MALLORCA (BALERIC ISLANDS)
- ✓ **System Operation Department of the Canary Islands** (Main Office in Las Palmas de Gran Canaria) CL JUAN DE QUESADA, 9. 35001 - LAS PALMAS DE GRAN CANARIA (LAS PALMAS)
- ✓ **System Operation Department of the Canary Islands** (Main Office in Tenerife): NUESTRA SEÑORA DE LA TERNURA (LOS MAJUELOS). 38108 - SAN CRISTOBAL DE LA LAGUNA (S.C. DE TENERIFE)
- ✓ **Western Regional Office:** CL ZALAETA, S/N EDF REE. 15002 - LA CORUÑA (A CORUÑA)
- ✓ **Northern Regional Office:** AV DE ENEKURI, 60 EDF REE. 48014 - BILBAO (VIZCAYA)
- ✓ **North-western Regional Office:** AV PARALELO, 55 EDF REE. 08004 – BARCELONA
- ✓ **Southern Regional Offices:** C/INCA GARCILASO, 1 EDF REE. 41092 - ISLA DE LA CARTUJA (SEVILLA)
- ✓ **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 PI 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 GUADAIRA (SEVILLA)
- ✓ **Balearic Islands Regional Transmission Centre:** (Industrial estate MARRATXI) C/ Gerrers esquina Siurells, 2ª Planta. MARRATXI – PALMA DE MALLORCA
- ✓ **Canary Islands Regional Transmission Centre: (Industrial estate MAYORAZGO)** C/Laura Grötte de la Puerta. 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
400/200 kV Substation Vic	Vic (Barcelona)
400 kV Arcos de la Frontera-Pinar del Rey line *400 kV Arcos de la Frontera-Puerto de la Cruz line* *220 kV Jordana-Pinar del Rey line* *400 kV Pinar del Rey-Tajo de la Encantada line*	San Roque y Castellar (Cádiz)
400 kV La Cereal-Galapagar line *400 kV La Cereal-Fuencarral line*	Tres Cantos (Madrid)
400 kV Galapagar-Moraleja line	Arroyomolinos (Madrid)
400 kV Rubí-Begues line *400 kV Begues-Garraf line* *220 kV Begues-Viladecans line* *220 kV Castellet-Viladecans line*	Begues (Barcelona)

4. 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 with those of consumption. 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.

To minimise these effects, it is essential to conduct a detailed study of the territory, and work in coordination with the public administration and key stakeholders in the definition of the jointly-agreed siting (location) of substations and regarding the routes the electricity lines will follow, as their adequate siting is crucial to reduce and even avoid undesired impacts on the environment and on the local communities.

The best tool to carry out this process is the Environmental Impact Assessment procedure, the majority of Red Eléctrica's projects are bound by law to carry out this procedure, which defines the alternatives, which being technically and economically feasible, have the least impact on the natural and social environment.

When the law does not require any regulated procedure, Red Eléctrica performs an assessment of an environmental nature which allows preventive and corrective measures to be defined and applied, and voluntary communication with the competent authority is established.

In addition, defining and establishing the appropriate preventive and corrective measures before undertaking the various tasks (whether it be the construction of new facilities or the modification of existing ones) is essential to minimise, to the highest degree possible, the potential impacts that the Company's activities may have on the territory.

The environmental monitoring of construction works, environmental monitoring programmes and the periodic revisions and systematic audits of in-service facilities (infrastructure maintenance), ensure that the defined measures are implemented and controlled during construction work, evaluating their effectiveness and defining new actions if deemed necessary.

Coordination with local governments and other stakeholder groups is ongoing and is key throughout this process.

The diagram on the following page illustrates in a schematic form the main environmental criteria applied in the key phases of the development of the transmission grid:

Environmental criteria applied in the development and implementation phases for transmission grid infrastructure

Infrastructure proposal
(Drawn up by REE)

Environmental Feasibility Study:

- Analysis of all proposals from an environmental point of view.
- Only includes environmentally feasible projects.

Transmission grid planning
(Drawn up by MINETUR)

Strategic environmental assessment of plans and programmes.

Public participation of stakeholder groups (SGs) through the submission of comments or arguments.

Project design
(New facilities and modifications)

Prior dialogue with stakeholders before defining the project (Autonomous Communities, local councils and NGOs).

Environmental Impact Assessment.

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.

Construction or modification of facilities

Implementation of preventive and corrective measures.

Environmental monitoring (monitoring of preventive and corrective measures).

Monitoring the work of contractors regarding compliance with environmental requirements.

Environmental certification of works taking into account compliance with environmental requirements.

Maintenance

Environmental monitoring programmes in the initial years of operation of a facility.

Periodic inspections of facilities to verify compliance with standards and identify improvement measures.

Application of environmental improvement measures.

Taking the diagram of activities previously shown as a reference, the following are relevant events that occurred during 2016:

1 - TRANSMISSION GRID PLANNING

As a result of the obligations arising from the Environmental Report of the new 2015-2020 Energy Planning and, prior to that, from the 2008-2016 Planning of the electricity and gas sectors, the Company has been collaborating since 2009 with the Ministry of Energy, Tourism and Digital Agenda on the drafting of the annual environmental monitoring reports consisting basically of the calculation of a series of performance indicators defined in said Environmental Report.

The 2015 report is available via the following link:
http://www.minetad.gob.es/energia/planificacion/Planificacionelectricidadygas/desarrollo2015-2020/Paginas/informe-anual-seguimiento.aspx

The indicators drawn up during 2016 are different in nature to the previous ones as they now correspond to the Strategic Environmental Planning for a new period, 2015-2020.

2 - PROJECT DEFINITION

The approval of the Electricity Transmission Grid Development Plan (2015-2020) has meant that 2016 was a year marked by the large number of permitting processes initiated with respect to those initiated in previous years (2013, 2014 and 2015).

During 2016, environmental permitting process was initiated for **45 projects (investment projects + maintenance projects)**:

	Permitting process initiated		
	2014	2015	2016
Initial document	1	1	7
Environmental Document	9	16	28
Environmental Impact Study	3	5	10
Total initiated	**13**	**22**	**45**

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

	Completed permitting process		
	2014	2015	2016
Positive Environmental Impact Statement	14	5	2
Negative Environmental Impact Statement	0	1	0
Environmental Resolution	17	11	11
Total	**31**	**17**	**13**

Environmental authorisation was obtained for **13 projects**, all of which received a positive environmental impact statement. There hasn´t been a halting in the processing of any project.

At year end, **81 projects are at different stages of the environmental permitting process.**

Regarding **maintenance tasks**, during 2016 a comprehensive analysis was conducted of the environmental permitting requirements associated to the overall maintenance actions scheduled for 2017 *(Renovation and Improvement Projects (RIPs), replacement of grounding cable for fibre optic cable, Asset Management (AM) and third-party modifications).*

Once said requirements are analysed (for projects in which initially a regulated environmental permitting process is not required), letters of consultation are prepared and registered with the corresponding public administration offices accompanied by documents and reports that are required in each case. Noteworthy is that as a result of the aforementioned, in 2016 a large number of replies (**78**) were obtained in the way of authorisation and/or exemption from the environmental permitting process. This has guaranteed, from an environmental point of view, that the planned maintenance activities have received clearance prior to them being carried out.

	2015(*)	2016(*)
Renovation and Improvement Projects (RIPs)	27	20
Optic Fibre (OF)	9	7
Third party modifications	1	3
Asset Management (AM)	38	48
Total	**75**	**78**

(*) Data regarding letters replied to from the archaeological point of view or various responses from different agencies concerning the same facility is not included.

The relationship of projects can be found in the Annex: *Environmental Actions 2016*

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.

Similarly, effort has been made to continue increasing 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 (EMP) 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 2016: **4 substations and 230.465 km of line.** In addition, 2 substations and 33.775 km of line, classified as "turnkey" projects, were brought into service as a result of contracts with electric utility companies.

The following infrastructure was under construction during the year; **27 substations and 757.499 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 (89), in other words, **100% of the construction works in substations and 100% of the works on lines** (this percentage also considers works regarding modifications of existing lines).

The **permanent environmental supervision**, aimed at intensifying the control and monitoring, covered **85.39%** of total works performed.

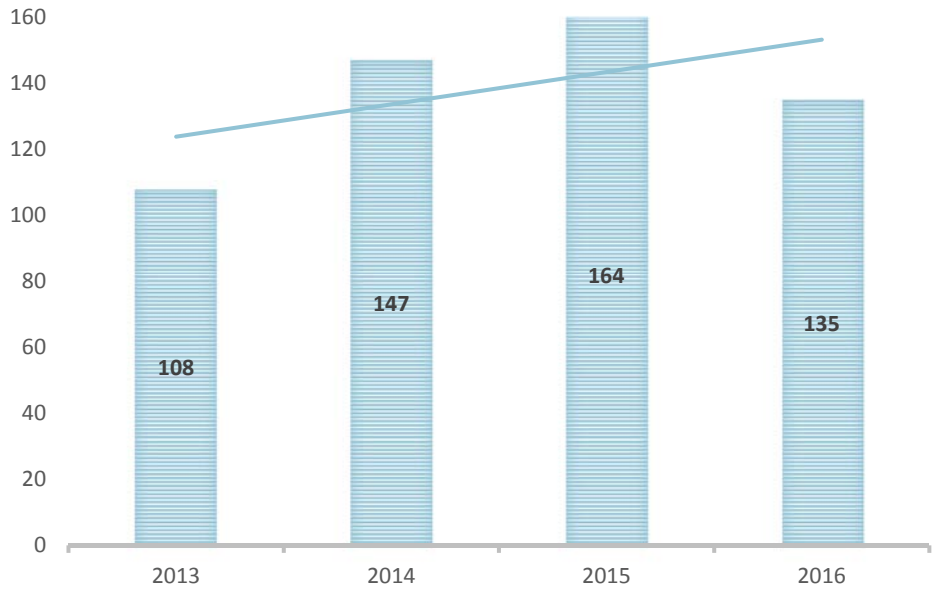
Environmental monitoring (new infrastructure + RIPs/ReEPEX))				
		2014	**2015**	**2016(*)**
SUBSTATIONS	**No. of works supervised**	30	29	27
	Permanent environmental supervision	23	20	26
	Permanent environmental supervision %	71.8	68.97	**96.30**
LINES	**Total km of works supervised**	698.43	1,265.67	757.499
	Km of line with permanent environmental supervision	643.81	963.08	677.879
	Permanent environmental supervision %	92.18	76.09	**89.49**

(*): Included in the calculation is the environmental monitoring investment together with that of AM (Asset Management), RIPs (Renovation & Improvement Projects) and REPEX (Replacement Expenses).

The most notable preventive, corrective and compensatory measures carried out in this phase during 2016 can be consulted in the Annex: *Environmental Actions 2016*.

4 - MAINTENANCE OF FACILITIES

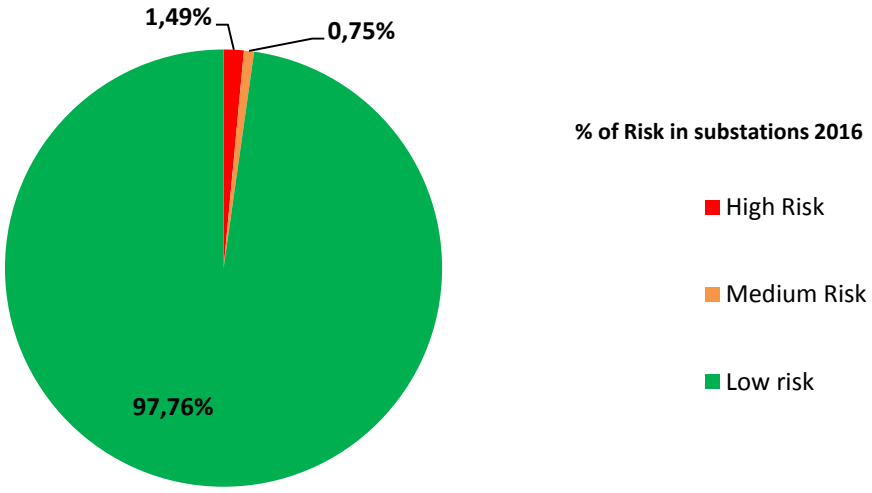
During 2016, environmental experts specialised in maintenance carried out a total of **135 environmental inspections**, of which 133 corresponded to substations, and of these, 30 were facilities that had not been monitored since August 2008, the year in which this activity was launched.



**The blue line reflects the overall trend*

Of the total substations in service in 2016 (657), over 90.56% have been visited (595), at least once, in the last 7 years (2009-2016).

In terms of risk, only 1.49 of the inspections registered a high level of risk. This was due mainly to incidents detected in the substation inspected in the Balearic Islands Regional area (Cala Mesquida).



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:

- Works and adaptation to power transformers.
- 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 SF_6 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 the year 2016, a total of **117 environmental inspections of maintenance work** were carried out.

5. ENVIRONMENTAL ASPECTS

❖ Environmental aspects in the definition of projects for facilities

The 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:

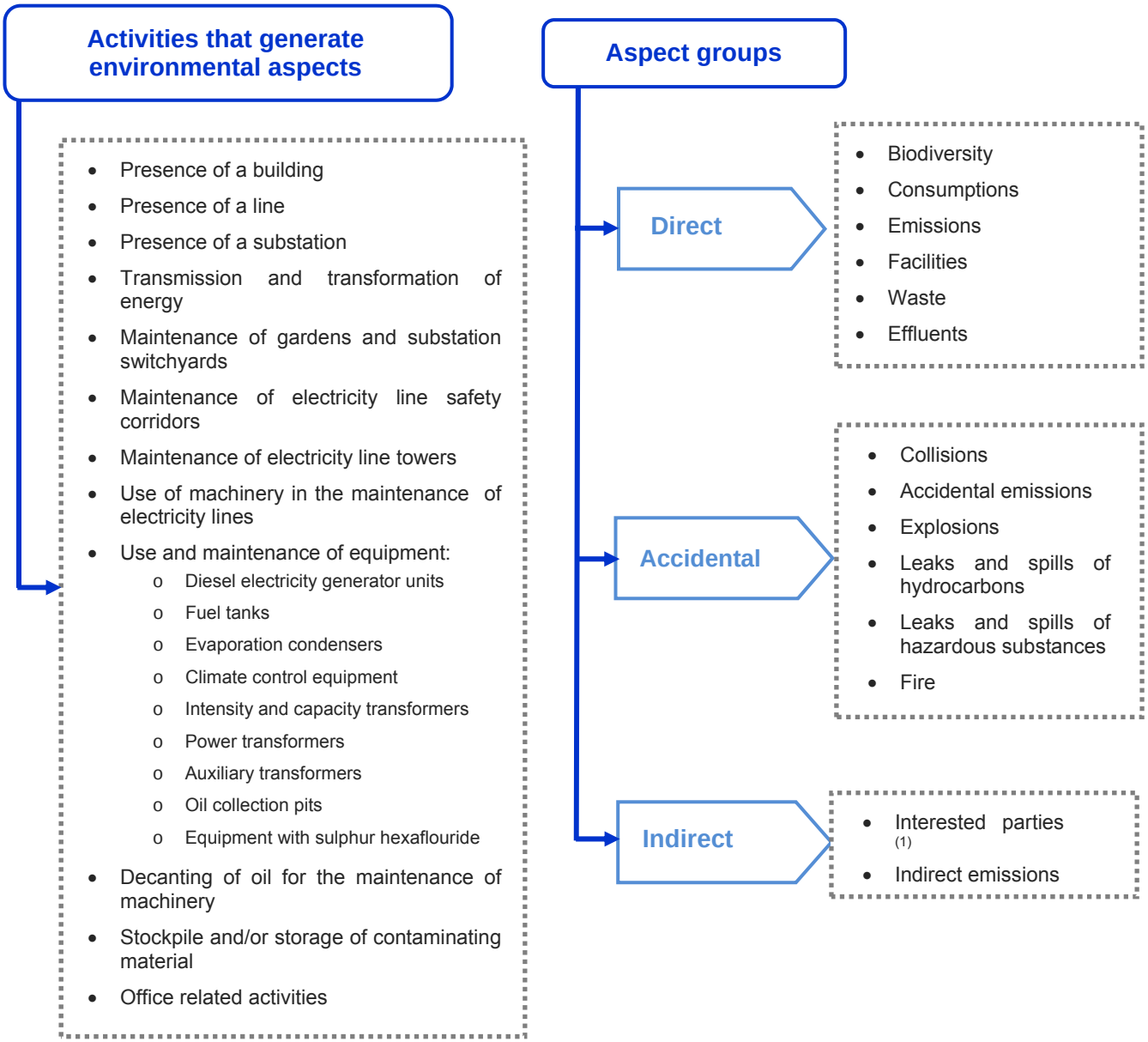
Activities that generate environmental aspects
Storage and transfer of oils and fuels
Storage and management of waste
Work sites (substations)
Land compacting
Clearing, pruning and felling
Excavation and landfill works
Concreting and cleaning of containers used
Hanging/stringing of conductors and grounding 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 spillage during use of machinery	Physical	Potential contamination of ground and water sources
Risk of oil and fuel spillage during storage and transfer of oils and fuels	Physical	Potential contamination of ground and water sources
Risk of oil spillage 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 of facilities in service

The activities carried out in facilities in service that can generate an environmental aspect are the following:



(1) Collaborations carried out with interested parties (organisations and institutions) on matters linked to the environmental aspects of Red Eléctrica.

The evaluation of aspects is conducted annually. Those aspects shown in the table below were identified as **significant** in the 2016 assessment:

Aspect	Relevant evaluation	Environmental aspect susceptible to impact	Impact	Observations
Biodiversity				
Clearing, pruning and felling (Direct)	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. For the evaluation, the most restrictive criteria have been used due to the lack of detailed information.
Consumption				
Paper consumption	South and Canaries Regional Areas, Head Offices (Moraleja+Albatros) and CECORE Tres Cantos	Physical	Reduction of natural resources	These are significant due to the fact that consumption has increased with regard to the average value of last year.
Water consumption	Regional Areas: Canaries, Northeast, Central, and West Regional Office	Physical	Reduction of natural resources	These are significant due to the fact that consumption has increased with regard to the average value of last year.
Electricity consumption	Central Regional Area	Physical	Reduction of natural resources	These are significant due to the fact that consumption has increased with regard to the average value of last year. Consumption is evaluated with respect to the consumption obtained in 2015 to which the consumption of the new centres has been incorporated (added in 2015).
Hazardous waste				
Water-oil mix	Central Regional Area	Physical	Potential contamination of ground and water due to storage or waste	The amount of hazardous waste has been significant and has exceeded 5,000 kg/year on average per generation centre in each Regional area and those that, with an average production of between 500-5,000 kg/yr whose final destination is controlled disposal.
Electric and electronic waste containing hazardous elements	South Regional Area			
Soil contaminated with hydrocarbons (Direct)	East Regional Area North Regional Area Northeast Regional Area			

Aspect	Relevant evaluation	Environmental aspect susceptible to impact	Impact	Observations
Accidental aspects				
Birdlife collisions	Canaries Regional Area North Regional Area Central Regional Area	Biological	Potential impact on species	For the evaluation, the most restrictive criteria have been used due to the lack of data regarding its monitoring. In the Canary Islands, the significance is linked to the completion of an intensive monitoring of lines.
Leaks or spillages from power transformers	North Regional Area	Physical	Potential contamination of the atmosphere	Noteworthy are the leaks related to the leakage of REA 1 (RTP) from the Aragón substation.
Leaks or spillages from the fuel tank of diesel generator units	Balearic Regional Area South Regional Area	Physical	Potential contamination of ground and water	Consequence of two accidents in the diesel generator units located in the Bessons substation and in the Southern opening (portal) of the electricity interconnection with France.
Leaks or spillages in the oil-filled underground cable	South Regional Area Balearic Regional Area	Physical	Potential contamination of ground and water	Noteworthy are the accidents in the interconnection cable with Morocco (Tarifa-Fardioua) as well as those in the interconnection between Majorca and Menorca (Cala Mesquida-Cala Bosch).
Fire in substation	Balearic Regional Area	Biological	Elimination of flora/vegetation	Fire occurred in the Artá substation as a result of the explosion of a voltage transformer.

6. ENVIRONMENTAL PERFORMANCE 2016

To ensure the correct operation of the transmission grid, the facilities require 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, Red Eléctrica is oriented towards developing a more sustainable energy model, contributing to reaching the European 20-20-20 targets, 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 undertaken to work on reducing its own emissions of greenhouse gases.

The environmental performance of Red Eléctrica in 2016 is included within the set of strategies that allow the environmental variable to be integrated internally in all the development phases of transmission grid facilities, and therefore in all the works performed by the Company that contemplate both raising the awareness of stakeholders and encouraging their participation.

Throughout this section, Red Eléctrica's environmental performance during 2016 regarding the Company's overall activities is set out as per each of the following environmental aspects:

- Climate change and energy efficiency
- Biodiversity
- Saving of resources: Water and paper
- Socio-economic environment
- Waste
- Ground/Soil
- Stakeholder groups
- Research and development

6.1 Climate Change and Energy Efficiency

In order to combat climate change, the transition to an energy model based on the electrification of the economy, the decarbonisation of the electricity sector and the increase of energy efficiency is essential.

Red Eléctrica, as transmission agent and operator of the electricity system is a key player in the progress towards a more sustainable energy model: the development of transmission infrastructure and the implementation of solutions for system operation aimed at integrating and making a better use of renewable energy, are essential developments to move forward in the achievement of the European objectives regarding the fight against climate change.

Therefore, although Red Eléctrica is not subject to the regulation that requires reporting and deducting (or in its case, offsetting) emissions associated with its activities, in 2011 it decided to formalise its commitment to the fight against climate change by approving a specific strategy, which was reviewed and approved by the Chairman in May 2014.

Additionally, Red Eléctrica as a member of the Spanish Green Growth Group, signed the Barcelona Declaration in May 2015. The association seeks to promote public-private collaboration, in order to progress together in the de-carbonisation of the economy, by working on aspects related to mitigating actions and the adaptation to climate change and to the circular economy.

Since 2011, Red Eléctrica has annually participated in the Carbon Disclosure Project (CDP) and discloses its responses to society. The Company has established as an objective, the progressive improvement of its score. In 2016, (corresponding to the 2015 fiscal year, the Company was included in the CDP Leadership Index (A list). The Company has been recognised among the group of leaders for their efforts and actions to combat climate change. In addition, Red Eléctrica received the maximum score in the Dow Jones Sustainability Index in the criteria of Climate Strategy.

The climate change strategy is associated with an action plan on climate change in which the objectives to be achieved in this field and the measures to be taken to realise their achievement are established. The plan is divided into four main courses of action: contribution to a sustainable energy model, reduction of the carbon footprint, stakeholder involvement 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:

- Construction of facilities that will contribute to reducing emissions from the electricity system as a whole, such as electricity interconnections and the transmission facilities necessary for the evacuation of renewable energy and for feeding the rail transport network.

- The operation of the electricity system, which thanks to the CECRE (Control centre of renewable energies) and various promotion projects, enables the maximum amount of renewable energy to be integrated under safe conditions (in 2016, 40.8% of the peninsular demand was covered with renewables).

- Activities geared towards contributing to the efficiency of the electricity system, such as the different measures of demand-side management and the development of research projects in relation to smart grids and electric mobility. Some of the projects in this area are included in section 6.1.3 on energy efficiency.

In connection with its carbon footprint, Red Eléctrica makes a significant effort to quantify its emissions (GHG Inventory) and has established different actions that are described throughout this section. The Action Plan sets the reduction or compensation of 21% of the company emissions compared to 2010 as a general target for 2020, in addition to other partial objectives.

6.1.1 CO_2 emissions inventory

Red Eléctrica drafts its emissions inventory based on the methodology of the GHG Protocol. Since 2011, the Company has been working on expanding the inventory and improving the calculation processes. Since 2013, the inventory has been submitted to independent review in accordance with ISAE 3410.

The emissions inventory of greenhouse gases of Red Eléctrica in the last three years has been as shown in the table on the following page:

Greenhouse gas emissions (t CO_2 equivalent) (*)	2014	2015	2016
SF_6 (1)	81,018	31,651	28,770
Air conditioning	809	840	610
Fleet vehicles (2)	1,094	989	1,898
Diesel power generator units	204	182	222
Total direct emissions (SCOPE 1)	83,125	33,662	**31,500**
Emissions associated with electricity consumption (3)	3,86	4,229	1,664
Emissions derived from losses in transmission (4)	767,907	804,118	736,374
Total indirect emissions (SCOPE 2)	771,774	808,347	**738,038**
Totals (SCOPE 1+2)	854,899	842,009	**769,538**

(*) 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 inventory was submitted to independent review in accordance with ISAE 3410.

(1) Taking GWP to 100 years: 22,800 (Source IPCC, Intergovernmental Panel on Climate Change: 4th assessment report). The decrease in SF6 emissions as of 2015 is linked to the change in the methodology used for its calculation. In 2104 the data was calculated based on the application of theoretical emission factors of the installed gas. As of 2015, the calculation is based on actual data regarding leakage.

(2) Data from 2014 and 2015 only includes fleet vehicles owned by Red Eléctrica. Data for 2016 includes owned vehicles and shared leasing vehicles (including executive vehicles).

(3) Different emission factors are used depending on the electricity supply of each work centre. Until 2015, the average peninsular factor calculated by Red Eléctrica was used.

(4) Losses in the electricity transmission grid are related to the location of generation points in relation to the consumption points (the greater the distance, the greater the losses), the amount of energy demanded during the year, the generation mix of the year (percentage of each generation technology in the total energy generated), international exchanges and the shape of the demand curve. Practically none of these factors are manageable by Red Eléctrica, making it very difficult to reduce losses. In this case, as in the case of emissions associated with the consumption of electrical energy, CO2 is not emitted during the activities of Red Eléctrica, since they take place in the different points where electrical energy is generated. For the calculation of emissions associated to the losses, the emission factor calculated by Red Eléctrica is used taking as a basis the balance of the annual peninsular generation. During 2016, emissions have been reduced due to the decrease in the emission factor, mainly associated with a higher generation of hydroelectric power and a lower share of coal in the peninsular energy mix (emission factor in t CO2-eq/MWh: 0.266 in 2015 and 0.214 in 2016).

Indirect emissions (SCOPE 3) (t CO_2 equivalent)	2014	2015	2016
Emissions associated with business trips (1)	1,485	2,517 (2)	1,433
Emissions associated with internal transport of materials (2)	641	589	494
Work displacements	3,468	3,345	3,574
Emissions associated with the value chain (3)	175,389	234,807	223,275
Total emissions Scope 3	180,983	241,258	**228,776**

(1) Corresponds to trips made by train, plane, privately owned or rental vehicles and taxi. This scope does not correspond to that of 2015, which also included the emissions derived from the use of shared leasing vehicles and executive vehicles, which this year have been included in Scope 1).

(2) The calculation method was adjusted in 2016.

(3) 2014: information on suppliers that represent 95% of the volume of purchase orders. Carbon intensity in the value chain: 370 t CO2 / million euros.
2015: data on 100% of purchase orders. Carbon intensity of the value chain: 424 t CO2 / million euros
2016: data on 100% of purchase orders. Carbon intensity of the value chain: 372 t CO2 / million euros

***Note:** For the correct interpretation of the data it is necessary to take into account that:*
- Carbon intensity depends on the type of purchase orders made during the year and there are products / services with different carbon intensity. That is why strict comparisons cannot be made between the different years. Of all the activities, the construction of facilities and manufacturing of equipment are the most carbon intensive.
- From the last study of Red Eléctrica's value chain, corresponding to 2016, it is deduced that 42% of the emissions of the value chain are associated to only the 10 suppliers with the highest contracting volume.

6.1.2 SF_6 emissions

The main direct emissions derived from Red Eléctrica's activities are those coming from sulphur hexafluoride (SF_6).

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 from equipment, leakages due to handling the gas and those one-off accidents that may occur.

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

- Improvement of the procedures for the control and identification of leaks, inventory and management of SF_6 gas.

  - ✓ During 2016, Red Eléctrica has continued to improve the procedure for monitoring the gas and the calculation of annual emissions having incorporated this process into the Company's IT tools (this new procedure will be implemented during 2017). In addition, work has been done on defining new requirements for the handling of SF_6 gas by suppliers and contractors and for the management of equipment at the end of its useful life. Criteria related to action guidelines regarding leakage have also been revised in order to minimise breakdown and incident resolution times to minimise emissions. The execution of all these works has been considered a priority managerial objective for the Company, reaching a compliance of 100% in 2016.

- Provision of the most efficient equipment for the detection of leaks, the handling and measurement of SF_6.
- Training of people involved in the handling of the gas. Red Eléctrica has two legally recognised training centres with a classroom for lectures and a workshop for experiments in which 426 employees have been trained since 2013.
- Replacement of old equipment with equipment with lower leakage rates.
- R&D+i projects related to the improvement in the management of gas. Collaboration with EPRI (2015-2020) and the development of a leak repair methodology for SF_6 in GIS facilities (2016-2018).

Additionally, Red Eléctrica continues working in collaboration with the government and other entities in the search for solutions aimed at controlling and reducing these emissions.

In 2016, various meetings were held 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 using SF_6, electricity transmission and electricity distribution companies and waste managers of this gas and of the equipment containing it, in order to achieve a comprehensive management of the use of SF_6 in the electricity industry which is more respectful to the environment.

	2014	2015	2016
SF_6 installed (kg)(1)	324,696	373,806	**421,666**
SF_6 Emissions/SF_6 installed (%)(2)	1.09	0.37	**0.30**
Total emissions (kg)	3,553	1,388	**1,262**

(1) The growth in installed gas is due to the commissioning of new facilities and the replacement of old equipment for equipment insulated with SF6. However, the large increase in 2016 is also associated with the updating of the inventory of SF6 gas insulated substations, which has made it possible to determine the amount of gas contained in them (which in previous years was estimated).

(2) The emission rate is calculated based on emissions data calculated according to actual records of leakage. No data from previous years is included as it is not comparable. The reference rate is 0.5%, which is the maximum leakage rate for equipment in service established in the Voluntary Agreement for SF6 management signed in 2015. This rate is set for the equipment commissioned from the date the agreement was signed, allowing greater leakage rates in previous equipment.

REDUCTION OF GREENHOUSE GAS EMISSIONS (1)	
Annual savings	*t $CO_{2\text{-eq}}$ / year*
Reduction of SF_6 emissions due to the replacement of old equipment for equipment with a lower leakage rate (1)	1,076

(1) Reductions associated with measures implemented in 2016.

6.1.3 Energy efficiency

As a key player in the electricity sector, Red Eléctrica 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 works in this field not only from the perspective of the operator of the electricity system, promoting various measures to improve system efficiency, but also from the perspective of improving its own processes, with the aim of reducing its own carbon footprint.

Increasing energy efficiency is essential when it comes to reducing emissions.

Actions aimed at reducing energy consumption focus on two areas of action:

- internal measures aimed at: reducing electricity consumption, efficient mobility and raising employee awareness

- demand-side management measures aimed at contributing to the efficiency of the electricity system

The information regarding these actions is described in more detail in the following sub-sections.

6.1.3.1 Electricity consumption-Reduction of electricity consumption

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

	2014 (kWh)	2015 (kWh)	2016 (kWh)
Head Offices (Moraleja + Albatros)	8,399,121	8,558,868	8,284,272
Tres Cantos	1,652,529	1,690,439	1,707,270
Non-peninsular systems (2)	1,304,592	1,319,628	1,396,884
Regional Head Offices (1)	2,176,256	2,049,798	1,791,680
Regional work centres (3)	2,648,473	2,281,308	2.336,153
TOTAL (kWh)	16,180,971	15,900,041	**15,516,259**
TOTAL (Joules) (4)	$5.82 \cdot 10^{13}$	$5.72 \cdot 10^{13}$	$\mathbf{5.58 \cdot 10^{13}}$

(1) Regional offices. A total of 6 buildings distributed around the peninsula.
(2) Non-peninsular systems. A total of 3 buildings distributed in the Balearic and Canary Islands.
(3) These are work centres staffed primarily with maintenance personnel. In the period 2013, only the main regional work centres (7 offices) were included. In 2014, the consumption of 38 additional work centres has been included. In 2015 14 new buildings were included. In 2016, 2 new work centres are added to the annual reporting.
(4) 1kWh = $3.6 \cdot 10^6$ joules; total consumption data in joules, according to the criteria defined by GRI G4.

The main actions in this field regarding the reduction of electricity consumption are the following:

- **Improvement of energy management of existing buildings** and applying efficiency criteria in the construction of new buildings. Energy management system certified under ISO50.001 for buildings at the head offices.
- **Reduction of electricity consumption in substations** by selecting more efficient equipment and components, and establishing efficiency guidelines for their use, with special attention to auxiliary services.
- **Reduction of electricity consumption associated to the use or IT equipment:** Renewal of IT equipment and systems, with a target of reducing by 60% the electricity consumption associated with this equipment during the period 2012-2020.
- **Raising awareness** among employees and the collaborators who work in the facilities of the Company.

6.1.3.1.1 Specific actions carried out in buildings:

Within the programme of measures for the improvement of the energy management of the 2012-2019 Energy Management Plan below are those implemented in 2016:

- Energy Audits Plan: In 2016, in compliance with the Royal Decree on energy efficiency (RD 56/2016), energy audits were conducted in 21 buildings (Red Eléctrica work centres) and also an energy audit of the vehicle fleet.

  As a result of these audits, different efficiency measures related to air conditioning and lighting have been identified and will be implemented between 2017 and 2018 and are estimated to represent a savings of 183,800 kWh per year.

- Actions undertaken as part of the Energy Management System (*REeficiente* Project): In November 2012, Red Eléctrica certified the head office building complex under the UNE-EN-ISO 50001:2011 standard.

  Within the programme of measures to improve energy management of the Energy Management System 2012-2019 those projected in 2016 are detailed below:

  - Efficiency measures: it was not possible to carry out the replacement of supply and return ducts of the CL-1 and CL-2 climate control systems in the East Building, roof sections, in order to improve insulation. This is due to the proposed construction of a new building.

  - Awareness-raising measures: various awareness-raising campaigns were conducted among employees and third-party collaborators that work in the facilities of the Company.

- Actions undertaken in other existing buildings:

  - During 2016, energy audits were conducted in 21 buildings (Red Eléctrica work centres).

- No new energy management equipment was installed in 2016, but a series of actions were undertaken to improve the data obtained on the electricity consumption of the facilities.

- Renovated buildings: minor reforms have been made in 6 work centres in which different energy efficiency related measures have been implemented, such as:
  - Energy reduction measures: Improved closures (windows, doors etc.), eliminating thermal bridging, increasing the insulated glazing of glass panes and improving profiles; improvements in lighting; building envelope improvements by renovating insulation materials, improvements to the climate control systems and improvements in the control and management of the energy consumption of the building.
  - The buildings that were reformed are: Getafe, Mudarra, Sierro, La Lomba, Rubí and Cártama.

- Energy rating of buildings: Since 2011, Red Eléctrica has introduced standardised efficiency criteria in the design of buildings that are used as work centres and, since 2012, all new work centre buildings have been built under this efficiency criteria, achieving a B energy rating.

	2014	2015	2016(*)
Energy rating A	---	---	---
Energy rating B	6	7	8
Energy rating C	12	12	13
Energy rating D	4	5	3
Higher energy rating	the rest	42	43

(*) Red Eléctrica has a total of 67 buildings distributed nationwide and on the Balearic Islands and the Canary Islands.

- Efficiency measures in new work centres: In 2016, a new service and logistic depot building was built in the Torrente substation (Ibiza) that obtained a B energy rating.

6.1.3.1.2 Specific actions carried out in corporate communication systems:

- Technological renovation of workstations:

  In 2016, the technological renovation plan of TFT monitors and desktop and laptop PCs for employees has continued and equipment has been approved with maximum energy efficiency features within their sector. **105 TFT screens** (changed from 17" to 23") for employees and 16 display screens in the CECOEL have been replaced.

  This year **49 old desktop PCs** and **196** laptops were replaced.

- Management platform for office IT systems ***('REeficiente' Project)***:

  The energy efficiency policies applied since 2012 have been maintained in more than 90% of the equipment and user screens related to auto screen shut off, stand-by mode for idle equipment, etc.

  This measure helps to consolidate a savings of approximately 20% in energy consumption of the equipment, with the consequent improvement in the environmental impact (savings in CO2 emissions) and financial savings (€) for Red Eléctrica.

- LYNC Platform. Usage statistics

  Lync reduces travel by allowing virtual meetings to be held via a computer application and from any mobile device (laptop, tablet and mobile phone). The usage statistics for 2016 were as follows:

  - Instant messaging: 6,500 messages/month.
  - Audio: 9,000 minutes/month
  - Video: 2,000 minutes/month.
  - 400 conferences/month.

6.1.3.1.3 Key actions and estimated savings

REDUCTIONS IN ENERGY CONSUMPTION (1)		
	kWh/annually	*Joules/annually*
Efficiency measures in work centres: improvements to insulation, climatization and lighting (1)	113,454	$4.08 \cdot 10^{11}$
IT efficiency measures: Renewal of desktop equipment, laptops and monitors (1)	2,548	$9.17 \cdot 10^{9}$

(1) Estimated annual reductions resulting from the measures carried out in 2016 (estimations obtained from equipment specifications and information based on energy audits regarding the implementation of measures).

REDUCTION OF GREENHOUSE GAS EMISSIONS	
Net savings (1)	*t CO2-eq*
Savings in emissions due to efficiency measures related to fleet vehicles.	10
Savings in emissions due to efficiency measures related to management vehicles.	23
Savings in emissions due to the use of efficient taxis.	5
Savings in emissions due to contracting an electricity supply with a guarantee of origin. (2)	1.869
Annual savings (3)	*t CO2-eq/year*
Efficiency measures in work centres: improved insulation, climatization and lighting.	24
IT efficiency measures: Renewal of desktop equipment, laptops and monitors.	1
Reduction in SF6 emissions due to the replacement of old equipment for new ones with a lower leakage rates.	1.076

(1) Net savings compared to 2016 (measured or estimated).
(2) Electricity with guarantees of origin: 0 t CO2/kWh.
(3) Reductions associated to the measures implemented in 2016.

6.1.3.2 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.

Among the actions carried out by Red Eléctrica in this area are those related to its fleet vehicles. In this regard, it is noteworthy that 77.65% of Company vehicles (including shared leasing) have an energy rating of A or B. If we exclude special purpose vehicles (off-road, vans and car-derived vans), this percentage reaches 98.5%.

Among the most important measures taken in recent years, the following are noteworthy:

- **Efficient vehicle management**: a progressive improvement in the energy rating of the vehicles used and the optimisation of their use, through the CARs IT application (Agile, Responsible and Safe Driving System), which facilitates responsible driving and the use of efficient routes.

- **Reduction of emissions associated with business trips:** launch of a corporate fleet of 12 electric vehicles for trips during the working day; prioritisation of the use of efficient taxis (75% of the kilometres have been travelled in ECO taxis) and improvements in communication tools, in order to reduce the number of trips (video conferences and remote accessibility platforms).

- **Rationalisation of the use of private vehicles in the commute to workplaces.** Improvements in the company bus service and shuttle services connecting the offices with different locations; redesigning routes and lengthening hours so as to provide a better service; inclusion of the transport pass in the employee options for payment in kind (16% of the employees have adopted this measure) and promoting the use of shared vehicles (53% of the employees are doing so regularly).

- **Efficient vehicles for executives:** implementation of a fleet of electric and hybrid vehicles for the executive team, with recharging points at work centres.

Mobility objectives 2020

- ✓ Reduction of 30% of the emissions associated with the use of fleet vehicles (2010-2020).
- ✓ Business related travel: savings of 300 t CO2-eq per year is avoided as of 2020.
- ✓ Commuting of employees to and from work centres: over 200 t CO2-eq in savings as of 2020.

Fuel consumption (litre) during 2016 associated to vehicles:

	2014	2015	2016
Diesel (l)	408,277	400,096	712,853
Gasoline (l)	-	44	49,768
Biodiesel	-	121	0
Autogas (LPG)		33	0
Total fuel vehicles (l)(1)	408,277	400,139	**762,621**
Consumption of diesel generator units (2) (not associated to vehicles) (l)	4,100	5,061	3,452
Fuel consumption (Joules)	$1.52 \cdot 10^{13}$	$1.48 \cdot 10^{13}$	$\mathbf{2.82 \cdot 10^{13}}$

(1) Includes fleet vehicles, cherry pickers and management vehicles until 2013. The data for 2014 and 2015 does not include management vehicles or shared leasing. The fuel consumption for 2016 considers all the consumption of vehicles: management, pool, fleet vehicles and shared leasing.
(2) Corresponds to diesel refilled in the fuel tanks in the year.
***Note**: The fuel consumption indicated refers to the consumption in fleet vehicles, cherry pickers and executive vehicles until 2013. The 2014 and 2015 data does not include executive vehicles as they are shared leasing vehicles.*
1 litre diesel = $37 \cdot 10^{6}$joules; 1 L of gasoline = $34 \cdot 10^{6}$ joules; 1 L of gas oil = $37 \cdot 10^{6}$joules; 1 L of biodiesel = $32.79 \cdot 10^{6}$ joules; 1 L of LPG = $25.7 \cdot 10^{6}$ joules.

6.1.3.2.1 Sustainable mobility plan

Red Eléctrica approved the Sustainable Mobility Plan in 2014 with the aim of incorporating a new culture of mobility in the Company. This plan is aimed at helping meet the challenges undertaken in the Company's climate change strategy, promote energy efficiency, improve the quality of life of people employed and promote the positioning of Red Eléctrica as a company committed to sustainable development that takes actions anticipating future regulations in this field.

The objective of the Plan attempts to solve the specific issues caused by daily commuting between home and the workplace, and redirect those work displacements that are usually for work reasons towards more sustainable transport alternatives with less impact on climate change.

Therefore, the Plan is addressed from an environmental perspective (reducing emissions) and a social perspective (improving the quality of life of its employees). It includes a series of measures to improve mobility conditions for employees of Red Eléctrica and applies both to business trips as well as the daily commute.

Four courses of action are carried out:

- Rationalise the use of private vehicles
- Promote the use of efficient vehicles among employees
- Apply fuel saving measures
- Awareness and training

The implementation of the Sustainable Mobility Plan will have an associated saving in emissions.

In 2016, the Sustainable Mobility Advisory Committee was formed, consisting of the departments that make up the sustainable mobility working group, including the Human Resources Department represented by the General Services Department and the Department of Planning and Development of Human Resources, all coordinated by the Department of the Environment.

6.1.3.3 Awareness

The awareness raising actions for employees carried out this year have continued to be focused mainly on the Sustainable City concept through posters, intranet communications, visits, competitions etc.

In 2016, the **fourth edition of the Award to the year's most noteworthy Red Eléctrica Eficiente Project** took place; a recognition that arises from the need to promote best practices in energy efficiency developed or carried out in Red Eléctrica. The ceremony for the presentation of the award was organised on 3 March on the occasion of World Energy Efficiency Day.

Additionally, as in previous years, a number of projects and initiatives in this specific area have been carried out taking as a reference the two significant dates indicated below. These initiatives were complemented by disseminating messages and information using internal communication media in order to publicise the events.

- **Energy efficiency: 3 March - World Energy Efficiency Day**
- **Mobility: 16 to 22 September - European Mobility Week**

6.1.3.4 Demand-side management: Projects related to energy efficiency

The most relevant projects in this area of demand-side management during 2015 were:

- **SUSTAINABLE STOCK**: This project uses a reverse logistics model that consists of selling materials considered non-useful to third parties through an auction system, either for reuse or for valuation as waste. It is a simple and agile solution that allows the useful life of unused equipment or materials to be increased and at the same time it frees up space and it reduces the costs of storage for the Company.

  In September 2016, the renewal of the contract was signed with the company that was initially selected for the pilot project, which will allow continuity of the project. Since that time, two minor campaigns have been launched to remove obsolete material stored in Red Eléctrica's logistics centres and one for the material stored in supplier's facilities. The auction corresponding to the first of the campaigns ended in December 2016, although another two auctions are planned.

- **Automatic Real-Time Management of the El Hierro Hydro-wind Power Station.** The island of El Hierro (in the Canary Islands) has a unique generation facility, the hydro-wind power station of El Hierro, made up of a wind farm, 8 pumps and 4 turbines. The system allows wind energy to be generated and the surplus stored by pumping water between two reservoirs located at different heights.

  The project is now completed. At the end of 2015 this tool was brought into service and it began to be used by the System Operation Department of the Canary Islands.

  At the moment, this is in phase for the analysis of results and the adjustment of parameters, and the control centre has been using the tool in an ongoing manner throughout 2016 for the real-time management of this hydro-wind power station. Thanks to this, new records of renewable energy integration were reached throughout the year, with periods of more than 70 hours of continuous demand coverage with 100% renewable energy being registered. The total integrated renewable energy has gone from 19% in 2015 to 42% in the period January-November 2016.

  This project was submitted as a candidate for the 'Good Practice of the Year' 2016 and received the 'Commendable practices' mention.

- **REDCOM Project: The REDCOM project consists of expanding the use of Microsoft's Lync communication tool in terms of number of users and use of features.**
  At the same time, the project has as a complementary objective, the project seeks to inform about, promote and facilitate the use of LYNC among users.

It is expected that the implementation of this project will bring with it the following benefits:

- ✓ Expand the Company's communication channels
- ✓ Management of virtual meetings: decrease in meeting room reservations and of business trips
- ✓ Use of Instant Messaging
- ✓ Improvement in productivity: facilitating communication between Red Eléctrica's staff, including users who work remotely, and enabling communication with external collaborators

During 2016, work was carried out on the monitoring and stabilisation of the Lync communications service.

During 2017, work will continue to improve the capabilities of the tool including incorporating the latest advances from Microsoft.

6.1.4 Offsetting of emissions

Red Eléctrica has put into effect different alternatives for emissions reduction.

However, given the nature of the emissions (the principal direct emissions are diffuse) and the characteristics of the Company´s activities, in order to achieve greater progress in reducing the Company's carbon footprint, it is important to work on offsetting measures.

In this sense, Red Eléctrica offsets its emissions primarily through the **'Red Eléctrica Forest'** initiative, further information can be consulted in the section on biodiversity.

The goal of this project is twofold: offset emissions from Red Eléctrica by planting trees and the recovery of degraded natural areas, thus contributing to the conservation of biodiversity.

This initiative also seeks to contribute to the development of local economies by contracting work to companies or groups in the area, and as well as raising environmental awareness and involve the local population and Company employees. The project is undertaken on public land in different areas of Spain.

The following relevant milestones in 2016 are worth noting:

- **La Carballeda Forest (Zamora)**.
- **Tremuzo Forest (Galicia)**.

It is estimated that reforestation works completed in the La Carballeda Forest (Zamora), will offset 31,449 tonnes of CO2 and which, when added to the work already executed for the Ejulve project in 2015, will **help offset all of the direct emissions from 2015.**

Additionally, the planting of 59,693 trees in the Tremuzo Forest (Galicia) will offset 17,908 tonnes of CO2, representing 57% of the direct emissions during 2016, thereby **meeting the goal of offsetting 20% of the direct emissions**, as reflected in the climate change action plan.

Moreover, for the fourth consecutive year, the Company has partly offset the emissions arising from employee commutes to their respective work centres, having purchased a total of **2,050 VCUs** (Verified Carbon Unit) under the standard VCS (Verified Carbon Standard), which correspond to the emissions generated by all those workers who answered the mobility survey 2016 (57,15% of the workforce).

The offsetting was achieved by supporting a project against a deforestation project in the Amazon rainforest - Peru: '*Madre de Dios Amazon REDD Project*', which contributes to the conservation of biodiversity in the area and the development of indigenous communities.

6.2 Biodiversity

The commitment of Red Eléctrica to biodiversity has always been a key principle of its environmental policy and specifically it becomes evident in its biodiversity strategy and in a specific action plan covering all the Company's activities.

Red Eléctrica is part of the Spanish Business and Biodiversity Initiative (IEBB) promoted by the Ministry of Agriculture, Food and Environment, and in 2015 continued to be a member of the Biodiversity Compact. The Compact aims to demonstrate the commitment of the member companies with the conservation and sustainable use of biodiversity.

The following are the cornerstones of the biodiversity strategy:

- ✓ Integrate conservation and the sustainable use of biodiversity in the development of the transmission grid.
- ✓ Establish mechanisms to ensure the protection and conservation of environmental values in the Company's activities, especially in sensitive natural environments.
- ✓ Contribute and promote the development of applied research projects aimed at blending the transmission grid into the environment.
- ✓ Foster a communication and collaboration framework with stakeholders, increasing the visibility of the Company's commitment to biodiversity conservation.

In 2016, the Company received the Sustainable Development Award, awarded by the Ministry of Water, Agriculture and Environment of the region of Murcia to companies whose projects and initiatives contribute to the sustainability of the environment. In the section on generation and maintenance of carbon sinks, Red Eléctrica was recognised for including the Sierra del Molino mountain range in Calasparra in the 'Red Eléctrica Forest' initiative, which has resulted in the creation of a carbon sink of 18 hectares (22,000 trees and shrubs).

Red Eléctrica obtained the highest score (100 out of 100) in the biodiversity criteria in the Dow Jones Sustainability Index 2016

6.2.1 Electricity grids and biodiversity

Red Eléctrica's facilities are located nationwide as a result of the need of the electricity transmission grid to link the points of energy generation with those of consumption.

The priority criteria for the siting of new facilities are to Avoiding areas rich in biodiversity is a priority criteria taken into account in the planning phase as well as in the definition phase of each project. However, considering that 25% of the area of Spain has some form of environmental protection it is inevitable that in some cases infrastructure cross, or are located in protected areas or areas with species of interest.

The interaction of electricity infrastructure with biodiversity is mainly associated with its presence in the territory and the impacts associated to works required for its construction or modification, effects on fauna due to collision, fire risk and impacts due to maintenance work.

On these occasions, Red Eléctrica implements all the necessary preventive and corrective measures to minimise possible effects on spaces and species, and it even completes these by establishing environmental improvement actions to promote biodiversity in those areas where its facilities are located.

Currently, Red Eléctrica's facilities occupy only 0.08% of Red Natura Española. Of all existing infrastructures, only 15% of total lines and 6% of substations are in protected areas (Red Natura).

This year the 400 kV Boimente-Pesoz line was commissioned, with a length of 81 km, of which 10 km run through Red Natura 2000.

6.2.2 Birdlife protection

The main impact on fauna due to 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 2016, **90 km** of line were marked with bird-saving devices and the project "Birds and Power Lines: mapping of bird flight paths" was concluded. This project has allowed a geographic information system to be obtained and that provides the most complete and updated information on the presence, and flight paths, on the Spanish Peninsula and the Balearic Islands and the Canary Islands of the 47 focal species also identified (considered prone to collision and selected according to various criteria).

In addition, sensitivity maps and risk maps for the 17 Autonomous Communities have been drawn up, which allow the identification of areas that are more or less sensitive to the route of electricity lines based on the intra and inter-specific aggregation pattern of the focal species, and which therefore result especially useful for the planning of new line routes. Furthermore, they are also based on that influence the probability of accidents (collisions) occurring, and are the main tool for the planning of corrective measures and for prioritising actions in the sections of line with greater potential impacts on birdlife.

Based on the analysis of the risk maps, work has begun to draft a multi-year Line Marking Plan (2016-2023), by Autonomous Communities, and whose objective is to clearly identify all the sections that are not yet marked and that have been identified as a critical priority and therefore with the greatest risk of impact on birdlife.

At present, the sections of line which have a priority level which require critical remedial action add up to a length of 738.5 km, of which 217.7 km have already been dealt with and corrected. Assuming that these sections have a zero-potential risk value (already covered by corrective measures), the value of the cumulative risk index for the current grid is reduced by 15.2% (percentage of total risk reduced as a result of the actions carried out so far in the whole of Spain to mark lines with bird-flight diverters).

In order to achieve the objective of correcting the totality of the critical priority sections identified, it would be necessary to carry out corrective actions on an additional 520.8 km. This correction effort would entail action on only 1.8% of the overall length of the current transmission grid, but would imply a further reduction of 10.2% in the cumulative risk index.

In this way, carrying out actions for the correction of the sections with critical priority level would mean that a level of reduction of the total potential risk of the current grid of up to 25.4% could be reached, but only acting on 1.8% of the grid.

This risk reduction shall be calculated and analysed as of 2017.

6.2.3 Protection of habitats and species

In works for the construction of lines or the modification of facilities, the main effects 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, the following are noteworthy:

- 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 some modifications in the design of facilities to minimise its effect on flora: compacting or increasing the height of towers, the relocation of towers, modification to access roads etc.
- Construction of decanting pools and filters to prevent contamination of waterways.
- Signage and protection of habitats and species of ecological value to avoid them being damaged in the course of the work.
- Using techniques to hoist towers and hang conductors that reduce the need to open access paths, work sites and storage areas for materials: hoisting with a boom crane, or helicopter, hanging lines by hand or conducting work using a helicopter or drone.
- Transplanting of species affected by work to other areas.
- Biological stoppages in the totality of all work in rearing or nesting periods of species that could potentially be affected by work.
- Recovery of affected areas: restoration of slopes, sowing of seed and the planting work.
- Accompanying measures and carrying out of specific projects for improving biodiversity in affected areas.

The main actions carried out in 2016 regarding the protection of habitats and species were the following:

- Use of a helicopter to hoist 14 towers in the works to improve the 123 kV Ciutadella-Mercadal line.
- Hanging of line by hand (10 spans), in areas located in priority habitat, for the 220kV Torremendo-San Miguel de Salinas line and 15 spans of the incoming and outgoing feeder lines of the Torremendo substation.
- Biological stoppages of various duration (between 4 and 6 months) for 6 lines, to avoid impacts on different species, notably the Egyptian vulture, Golden eagle, Bonelli´s eagle, Booted eagle, Black kite, Honey buzzard, Marsh harrier, Grey eaglet, Royal owl, Dupont´s lark, Lesser kestrel, Little bustard, Pin-tailed sandgrouse, Black-bellied sandgrouse, Great bustard, Common crane and Sand martin.
- Removal of Sweet tabaiba (Euphorbia balsamífera) with its root ball intact, for subsequent use in the restoration works of the area of the incoming and outgoing feeder lines of the El Sabinal substation.
- Transplanting of 25 Olive trees affected by a tower of the incoming and outgoing feeder lines of the Godelleta substation, for their subsequent use in the restoration of the area near this substation.
- Planting of different species to offset tree felling works: 200 Poplars in the municipality of Valtierra (Navarra), restoration of 25.9 hectares in Grandas de Salime and 16.9 hectares in Pesoz (Asturias), by planting 36,000 Pine trees, 3,032 Chestnut trees, 3,563 Birch trees and 1,469 Wild cherry trees.

Other actions carried out are included in the 'Environmental Actions' annex of this environmental statement.

- **Habitat Project (**2014-2017)

  This project seeks to determine in detail the natural values present in the area of influence of the facilities of Red Eléctrica and their conservation status. The ultimate goal is to monitor the interaction of electricity transmission lines and natural habitats of Community interest, information that will be able to be used for the decision-making process regarding the operation and maintenance of facilities.

  The project was born in 2014 using the Autonomous Community of Aragón as the pilot project. The results obtained in the pilot programme were evaluated and work was then able to start in other Autonomous Communities.

  During 2016, detailed mapping was obtained of priority habitats of community interest located in the area of influence of the facilities of Red Eléctrica in the Autonomous Communities of Aragón, Balearic Islands, Castilla La Mancha, Castilla y León and Extremadura. With the help of consultants specializing in Priority Habitats, work has begun on the review and validation, from a scientific point of view, of the work carried out.

  The first phase, which is expected to end in 2017, consists of the creation of a digital information system with all the data, obtained by working in collaboration with the different Autonomous Communities and experts in the field.

In later phases, work will be carried out on the design of plans or measures to promote the conservation of these habitats (2018-2020).

6.2.4 Contribution to biodiversity conservation

Red Eléctrica actively contributes to the conservation of biodiversity in Spain spearheading or participating in various projects and conducting dissemination activities and environmental training. The Company has as an objective to carry out conservation projects in all Autonomous Communities.

In 2016, the Company collaborated on projects related to biodiversity in ten of the Autonomous Communities.

Most of the projects are aimed at the conservation of endangered bird species, although it also works with other flora and fauna species.

Also relevant are actions aimed at the restoration of degraded habitats, among which the 'Red Eléctrica Forest' stands out.

❖ **Conservation projects related to endangered species**

Detailed information on all projects spearheaded by, or in which Red Eléctrica participates, can be found via the following web links:

http://www.ree.es/en/sustainability/map-of-projects
http://www.ree.es/en/sustainability/the-natural-environment/avifauna

The following are the noteworthy conservation projects for endangered species:

- Nesting platforms for the Osprey (*Pandion haliaetus*) (1) in Andalusia: birth of 5 Osprey chicks during 2016

- Reintroduction of the Bonelli's Eagle (*Hieraaetus fasciatus*) (1) in Majorca: release of 6 adult eagles and 4 eagle chicks born in the wild. All have been fitted with transmitters for their subsequent monitoring

- Study of the true impact of food supplementation on the spatial and reproductive ecology of Bonelli's Eagle (*Hieraaetus fasciatus*) (1) in the Community of Valencia: project awarded with the Amigo Félix Prize for Nature Conservation 2016. 30 km of electricity line routes located in the spatial territories occupied by the species were marked with bird-flight diverters in 2016.

- Monitoring, conservation and recovery of the population of the Spanish Imperial eagle (*Aquila adalberti*) (2)(3) in Doñana.

- Adaptation of the facilities of the Bearded Vulture (*Gypaetus barbatus*) (2) breeding centre in La Alfranca.

- Foraging areas and movements of the Canarian Hubara (*Chlamydotis undulata fuertaventurae*) [2][3]

(1) Vulnerable species according to the national catalogue of endangered species.
(2) Vulnerable species in danger of extinction according to the national catalogue of endangered species.
(3) Vulnerable species according to the IUCN Red List.

❖ **Other actions carried out in 2016 for the conservation of birdlife:**

- Recovery of the population of the Golden Eagle (*Aquila chrysaetos*) in Galicia: one eagle was released and none of the chicks actually flew, additionally 49 territories have been surveyed.

- Reintroduction of the Lesser Kestrel (*Falco naumanni*) in Valencia: in 2016, a total of 80 falcon chicks were reintroduced using the hacking method in the municipalities of Salinas and Ayora, 15 eagle pairs have successfully breed and 135 falcon chicks were hatched.

- Technical programme for the conducting of works related to the satellite radio-tracking of the Golden Eagle (*Aquila chrysaetos*) in Navarra: during 2016 3 eagles were captured and tagged

- Improvement of the habitat of the Soprano Pipistrelle bat (*Pipistrelus pygmaeus*) in Valencia: in 2016, the use of electricity towers as shelters for the bat was evaluated.

❖ **Noteworthy projects for the protection and conservation of marine vegetation.**

- R&D+I project using an experimental technique for the recovery of *Posidonia oceanica* seagrass meadows (2012-2016)

  Posidonia oceanica is a marine plant endemic to the Mediterranean. It forms a habitat of priority interest, an essential ecosystem for many organisms to complete their life cycle. Posidonia contributes to the control of water quality and the protection of the coastline, and also constitutes one of the main CO2 sinks in the sea.

  The Posidonia seagrass meadows can be affected due to various reasons, among them the construction works for submarine electricity cables. For this reason, Red Eléctrica decided to promote this project, in collaboration with the Mediterranean Institute of Advanced Studies (CESIC-IMEDEA), whose objective has been to define and develop the necessary actions to restore the Posidonia meadows.

  The project consisted of the following phases:

    - Review of previous studies, definition of the project and training of the team.
    - Non-invasive collection of Posidonia fragments and seeds.
    - Cultivation of fragments and seeds in an aquarium (laboratory).
    - Sowing of seeds and planting of fragments on different substrates in the bays of Santa Ponsa (Majorca) and Talamanca (Ibiza).
    - Monitoring of plantations (growth rates and degree of survival).

  In 2016, the conclusion was reached that plantations of *Posidonia* are viable (survival rates around 50% have been obtained), therefore the project has been completed.

Due to the success of this project and taking this experience as the basis, it is planned to establish an open methodology for its use.

As a follow-up to this project, Red Eléctrica has decided to launch the project "Red Eléctrica Marine Forest", which will be developed in collaboration with the CSIC and the Government of the Balearic Islands and whose purpose is the actual restoration of 2 hectares of *Posidonia* in a degraded area of the Bay of Pollensa (Balearic Islands), following the methodology resulting from the research carried out. This plantation will be a living laboratory in which to continue advancing in the knowledge of the species and its ecology.

❖ The Red Eléctrica Forest

The most relevant milestones related to the 'Red Eléctrica Forest' in regard to biodiversity were the following

- **La Carballeda Forest (Zamora).** Restoration of 55.68 hectares of highlands affected by forest fires in the municipality of Espadañedo by planting 104,830 trees of different species: Pine (*Pinus sylvestris*), Birch (*Betula alba*), Wild cherry (*Prunus avium*), Mountain ash (*Sorbus aucuparia*), Oak (*Quercus robur* and *Quercus petraea*). Training workshops have been held for 153 schoolchildren from five schools in the area in addition to a forest tour, within the same programme created to work in the framework of the Puebla de Sanabria forest project "*I plant my land*".

- **Tremuzo Forest (Galicia).** Restoration of 40.87 hectares in the Tremuzo highland area (Concello de Outes) that had been affected by a devastating fire. A total of 59,693 native trees have been planted: Pines (*Pinus pinaster*), oaks (*Querqus suber and Quercus robur*), Birch (*Betula celtibérica*), Chestnut (*Castanea x hybrida*), Alders (*Alnus glutinosa*) and Holly (*Ilex aquifolium*), which complement the species that survived the fire (Wild willows and Pear trees). The rocky areas, in the highest parts, have been preserved in their natural state in order to favour open areas for the feeding of the fauna and thus contribute to the conservation of biodiversity. The project has been completed with the putting up of different informative signs, including descriptive milestones for each of the species planted and signage for a burial structure, dating back about 4,000 years, found in the area where the works were carried out. Within the framework of the project, different workshops have been organised with a total of 120 students from the two schools in the area, who have also carried out the planting of 156 trees. In addition, an awareness training day was conducted in which 61 Red Eléctrica employees participated.

- **Firgas Forest (Gran Canaria).** An agreement has been signed with the Island Council of Gran Canaria for the restoration of 16.96 hectares in Parque Rural de Doramas in the municipality of Firgas.

- **Chajaña Forest (Tenerife).** An agreement has been signed with the Island council of Tenerife for the restoration of 26.97 hectares in La Corona Forestal Natural Park in the municipality of Arico.

The Red Eléctrica Forest in figures 2009-2016

Trees and shrubs planted: **638,145 units**
Surface area recovered: **761 hectares**
Emissions offset: **183,483 t CO2-eq.**
Investment: **€1,795,914 euros**

6.2.5 Fire prevention

To minimise the risk of fire associated with the presence of transmission lines, strict compliance with the safety distances between flora and the facilities is critical.

Red Eléctrica ensures compliance through the execution of a series of actions such as:

- Adequate design of safety corridors.
- Active collaboration with the public administrations involved in forestry management.
- Predictive maintenance: annual review of all facilities.
- Preventive maintenance: periodic forestry works.
- Best practices in the opening up and maintenance of access roads: respect for shrub land and low height and slow growing tree species, minimisation of activities on protected species.
- Elimination of the use of chemical methods for treating the flora in the safety corridors.

These actions result in a very low number of fires occurring that involving Red Eléctrica's facilities.

In order to optimise the vegetation treatment tasks, the R&D+i ***Vegeta*** **Project (2016-2017)** was launched. During 2016, work was done on defining an algorithm that, based on the analysis of different variables (state of the vegetation, growth index, distance from the electricity line, legal requirements and other established criteria) allows felling works to be coordinated with greater efficiency. The project also includes making detailed inventories of the vegetation in the safety corridor below the overhead lines, making it possible to identify more precisely the compatible and incompatible species, thus facilitating the application of environmental criteria to the maintenance work.

Since 2007, Red Eléctrica has aimed to continue signing agreements for the prevention and fight against forest fires with the different competent public administrations responsible for forestry management. Said agreements address issues related to the management of safety corridors which electricity lines run through, and they also include other commitments related to the fight against fires.

Within the framework of these agreements various actions were carried out in 2016:

- Awareness campaign for the prevention of forest fires with the Regional Government of Aragón
- 3rd Working Days entitled ‘New technologies in the management of the phenomenon of forest fires’ regarding forest fire prevention in Toledo.
- During 2016, Red Eléctrica together with the Regional Government of Castilla La-Mancha and the Pau Costa Foundation took part in the first edition of the 'International Forest Fire Awards 2016'
- Course for Forest Fire Fighting Managers for staff of the Regional Government of Extremadura and of the Provincial Government of Vizcaya.
- Collaboration in the general informative campaign called "*El Bosc Vital*", launched by the General Directorate for the Prevention of Forest Fires of the Regional Ministry of Agriculture, Environment, Climate Change and Rural Development of the Government of Valencia.
- Awareness campaign for the tourism sector on the prevention of forest fires in the Balearic Islands
- Volunteering Projects: Forest Fires (Tenerife).
- Course for large-scale forest fire fighting managers and squad leaders 2017 (La Palma).
- Provision of personal protection equipment for staff hired for the winter campaign of the Government of Navarra.
- Selective cutting back and clearing of vegetation for the prevention of forest fires in the Atlantic coast basins of Bidasoa and Urumea.

6.3 Saving of resources: Water and paper

- **Water consumption**

	2014	2015	2016
Head Office (m^3) (1)	9,177	9,018	9,166
Head Office (m^3/employee) (1)	9.60	9.61	9.72
Work centres (2) (m^3)	28,069	27,250	26,455

(1) Only the head office building in the Moraleja and the staff that consume water in it is considered (employees, interns and collaborators: a total of 943 people).

(2) The data provided has a coverage of 99%, 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).

Withdrawal by source (%)	2014	2015	2016
Rain water collection tanks (3)	0.28	0	0
Cisterns	2.40	5.04	3.27
Wells	32.96	35.44	34.58
Municipal water mains	64.36	59.52	62.15

(3) In the Northern regional office and in some work centres cisterns are available for the collection of rainwater for use in fire prevention and irrigation. In general the wells do not have mechanisms to measure the water stored, whereby it is difficult to calculate the true % value of utilisation of rainwater.

An awareness raising session was held on 22 March on the occasion of the celebration of World Water Day.

- **Paper consumption (office)**

	2014	2015	2016
kg	33,443	18,838	19,437
kg/employee (1)	16	9	9.37

(1) Employee: All REE staff, including interns, workers from temporary employment agencies and collaborators. Total of 2,074.

72% of documents in 2016 are printed or photocopied on both sides (70% in 2015).

The table below shows the evolution of paper consumption in publications in the period 2014-2016.

	2014 (2)	2015	2016
kg	14,275	16,036	12,397
% FSC (1)	100	100	99.5
% FSC 100% Recycled	8	2	2
% FSC 60% Recycled	92	84	44.7
% FSC Mixed	---	---	50.2
% Ecological paper used in publications	---	---	2.6

(1) *Ecological paper certified to Forest Stewardship Council standards.*
(2) *2014 - New paper consumption calculation system*

6.4 Socio-economic environment

6.4.1 Protection of archaeological and ethnological heritage

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

In 2014, work was commenced on the *ArqueoRED* project, which aims to provide digital mapping of information regarding catalogued heritage sites that can be consulted prior to the planning of works. In this way and being fully aware of the situation in advance, enables potential effects to be avoided and or prior measures can be taken if needed in each case.

Thanks to close collaboration with the relevant authorities, the project has progressed in a highly satisfactory manner and information is already available on all the Autonomous Communities. In 2017, the second phase of this project will begin, which will consist of the in-situ revision and verification of all the information obtained.

Furthermore, before performing any earthworks, an archaeological survey is carried out whose intensity and scope are based on the probability of any material/remains of interest in the area. The results of this survey determine the need for the ongoing presence of an archaeologist during works. During 2016, archaeological supervision took place during the construction of five new substations and 19 works carried out on new and existing lines, with the permanent presence of an archaeologist at 95% of the lines and 80% of the substations. Similarly, Red Eléctrica collaborates actively with the public administrations in the conservation of cultural heritage.

The main activities carried out regarding the protection of archaeological and ethnological heritage are set out in the 'Environmental actions' annex.

The most noteworthy actions carried out in 2016 regarding the protection of the archaeological-ethnological heritage are the following:

- Measures implemented to prevent impacts on **Spanish Civil War trenches** discovered in the area of Cabezo del Cerro, in the county of Cuevas de Almudén (Teruel), near towers nº 9 and 10 of the route of the 400 kV Mezquita-Morella electricity line. The archaeological supervision led to the discovery of remains of deteriorated elements (crenelated parapets) corresponding to trenches of the Spanish Civil War. As a protective measure, a layer of geotextile, topsoil and iron plates were placed over the trenches in the transit area to be used by machinery therefore enabling machinery to perform its work and avoiding any impact on the area of trenches. After the works the entire surface was restored back to its original condition.

- Archaeological digging in the **Iberian archaeological site *'Cañada de la Lengua'* (Almansa, Albacete).** Excavation of a hamlet of the Iberian period located in the fields of Almansa; a project that is encompassed within the archaeological monitoring and supervision related to the works for carried out on the 400 kV Campanario-Ayora power line. Archaeological work uncovered an agricultural installation with a surface area of 150 m^2, approximately 2,200 years old, dating from the second or third century B.C. The complex contained a granary, storage rooms, a drying area and rotary mills

for processing grains. Following the excavation and documentation process, the archaeological remains were protected by shoring them up and covering them.

6.4.2 Electric and Magnetic Fields (EMFs)

Thanks to the criteria measures applied in the design of 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: limits exposure values for the general public in sites where they may remain for a period time at 5kV/m for electric fields and 100μT for magnetic fields. The most important measures 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.

In order to verify compliance with the recommendation, Red Eléctrica has a tool that, as of certain parameters of the lines, accurately calculates the maximum EMF levels that said facilities can generate.

In 2016, electromagnetic field measurements were conducted using predictive software for the following infrastructure at the request of the local administration and other stakeholders:

- *Increase in capacity of the 220 kV Pont-Pobla line.*
- *Voltage change to 400 kV for the 220 kV Loeches-San Sebastián de los Reyes line.*
- *220 kV Juia-La Farga line.*
- *400 kV Grade-Gozón line, 220 kV Tabiella-Gozón line and the incoming and outgoing lines in Gozón of the 220 kV Carrio-Tabiella line.*
- *400 kV Ribina-Baza line.*

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:

- *220 kV San Vicente-Jijona line, in the municipal area of San Vicent del Raspeig (Alicante), in the immediate vicinity of a private home.*
- *400 kV Bescanó-Santa Llogalla line, municipal area of Viladesens (Girona), in the town of Fellines. Conducted in 2015, but measurements were repeated in 2016 with the line energised.*
- *220 kV Arkale substation.*

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

During 2016, there were no incidents resulting from non-compliance of the norms regarding EMFs.

In addition, the plan for *in-situ* measurements was completed for facilities acquired by the company in 2010 in insular systems and for which no data was available. Measurements were made for each type of line configuration (defined by its voltage characteristics, geometry and number of circuits) in places with nearby buildings. Thus, a total of 21 measurement points were obtained in the Balearics and 27 in the Canary Islands, all with values in line with the recommendation. In 2017, the report of the results will be prepared in order to improve social acceptance and external dissemination of environmental actions.

Lastly, in order to reflect the advances in the scientific community and the recent declarations of International organisations, Red Eléctrica has worked with UNESA in updating the publication *'Electric and magnetic fields of 50 HZ. Analysis of the current state of knowledge'*.

6.4.3 Noise Pollution

In regard to substations worth noting was the work carried out by Red Eléctrica to reduce noise levels produced by different elements that may cause inconvenience to neighbouring properties.

In this line of work and to improve understanding of the nature of the noise generated, the ACURED R&D+i project was launched. Increased knowledge will allow the assessment of different technical solutions to reduce noise and promote its application in existing and future facilities. During 2016, the phases of preliminary study, evaluation, classification and prioritisation of sources of noise, and the proposal and simulation of corrective measures, were carried out. It is foreseen that the execution and validation of some of these corrective measures (noise barriers for transformers) will be carried out in 2017.

It is worth noting that in 2016 3 measurements were made due to grievances reported, all giving results within the legal limits:

- *Acoustic immission study conducted at tower 42 of the 220 kV Palau-Franqueses line located in the municipality of Lliçà de Munt.*
- *400 kV Bescanó-Santa Llogaia line, in the municipal area of Viladesens (Girona), in the Town of Fellines. (Line energised).*
- *Vilanova substation, requested by Endesa, due to the siting of the air-conditioning equipment on the building roof of Red Eléctrica's gas-insulated substation.*

As a relevant action, noteworthy was the installation of anti-noise barriers at the Santa Ponsa substation (Majorca).

In 2016, there were no incidents resulting from non-compliance of the norms regarding noise.

6.5 Waste management

The waste generated by Red Eléctrica is produced mainly as a result of the following activities:

- Tasks regarding preventive or corrective maintenance: revisions, changing of parts, oil renewal, etc.
- Improvement to facilities: renewal of obsolete switchgear, improvement in accident prevention systems, etc.
- Measures against accidents: containment measures used in the case of leaks or spillages and cleaning work may lead to a large amount of associated waste.

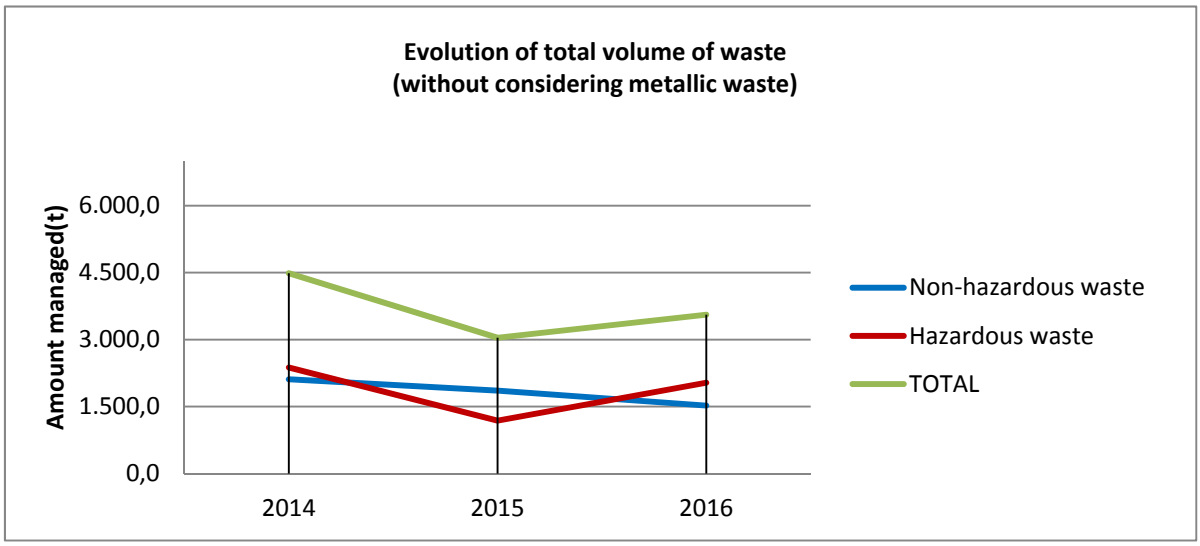
As far as waste generation is concerned, most of the waste does not follow a fixed pattern of behaviour, which is largely dependent on the number of construction and maintenance activities carried out throughout the year. Therefore, the interpretation of the data obtained and the comparison with previous years presents difficulties.

This year also adds a difficulty in comparing non-hazardous waste and the overall data obtained with that data available from previous years because metallic waste could not be included due to the fact that an adjustment in the process for the collection and recording of information regarding said waste is currently underway. This explains the difference between the data for 2014 and 2015 and that published in statements from previous years.

Flora and vegetation waste is not included either, but this was also the case in previous years, as most of it is incorporated into the land or handed over to landowners, as it is the most adequate waste management process, and therefore no variation in data.

In the case of hazardous waste, there is no impact and can be compared directly with the figures registered in previous years.

Considering the above assumptions, in general terms the volume of non-hazardous waste has decreased with respect to last year by approximately 335 t (18%), but the volume of hazardous waste has increased by approximately 851 t (72%).



The following are of note based on waste type:

Non-hazardous waste:

- The decrease in the volume of non-hazardous waste compared to last year is approximately 335 t (18%), without taking into account metallic waste. The amount of inert waste remains constant with respect to 2015.
- Efforts begun in 2015 to reduce the management of septic tank sludge, after the volumes experienced a stabilisation in 2013 and 2014, continued in 2016. This is primarily due to the fact that the campaign for the adaptation or replacement of assets to Red Eléctrica's standardised criteria and in some cases, to regulation in force, launched in 2010 is practically coming to its end.
- The amount of paper and cardboard waste managed is similar to that of 2015, so this aspect remains relatively stable.
- Slight reduction of wood waste managed compared to 2015, the improvement measures in segregation practices and delivery to an authorised waste management company in logistic centres have been continued.
- Other non-hazardous waste, generated in insignificant amounts, follow the trend of previous years.

Non-hazardous waste	Quantities managed (t)			Type of management [7]
	2014	2015	2016	
Septic tank sludge	1,380.716	1,087.310	753.461	Composting
Metallic waste not contaminated with hazardous substances [2]	2,022.441	1,476.903	333.036[2]	Recycling
Inert waste	329.005	537.505	574.013	Recycling (60%)/Incineration and Controlled elimination-landfill (40%)
Paper and cardboard	262.328	95.106	102.739	Recycling
Toner and printer inks [1]	0.014	0.008	0.026	Recycling
Wood	119.834	119.939	71.416	Recycling
Vegetable waste [3]	6.82	68.300	11.730	Recycling
Non-hazardous electrical and electronic waste	1.415	0.291	0.862	Recycling
Plastics	12.014	15.483	15.577	Recycling (90%)/ Controlled elimination-landfill (10%)
Glass	0.040	0.010	0.160	Recycling
Vegetable cooking oils	5.640	1.160	2.460	Regeneration
Alkaline batteries - Non-Mercury	0.040	0.051	0.044	Recycling
Silica gel and other inorganic chemicals [4]	0.000	0.673	1.174	Elimination
Absorbent and filtering materials [5]	0.000	0.000	0.490	Elimination
Total (without metallic waste) [6]	2,111.046	1,857.536	**1,522.422**	

(1) 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.
(2) In 2016 metal waste is not included as an adjustment is being made in the process of collecting and recording the information.
(3) 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.
(4) This waste item was incorrectly accounted for in previous years in the hazardous waste section.
(5) New waste item, included in 2016.
(6) This year a recalculated total is added without taking into account metallic waste, since an adjustment is being made in the process of collecting and recording the information with the aim of potentially being able to compare it. This explains the difference between the 2014 and 2015 data with that published in previous years.
(7) Waste management corresponds to the information provided by the contractor or to the default procedure used by the contractor responsible for waste management

Hazardous waste:

Of note is the increase of approximately 851t (72%) in the volume of hazardous waste, mainly due to:

- The oil and water mix in the maintenance of oil collection tanks for both REPEX (Replacement Expenditures) and RIPs (Renovation and Improvement Projects).
- Hazardous electrical and electronic waste.
- Equipment with oil (power transformers managed under REPEX).
- Insulation material (with and without asbestos, with a very important contribution of RIPs work in Mudarra in which micro-cement blocks with asbestos were detected).
- Gases in pressurised containers.
- Antifreeze containing hazardous substances (change of the circuit of the diesel generating unit at the head office).

Hazardous waste	Quantities managed (t)			Type of management [3]
	2014	2015	2016	
Used oil	315.235	172.389	256.227	Regeneration
Oils with PCBs [1]	0.160	0	0	Elimination
Oil/water mix	362.868	418.535	721.785	Regeneration (90%)/Elimination prior evaporation (10%)
Diesel/water mix	0.021	0	9.945	Valuation (90%)/Elimination prior evaporation (10%)
Transformers and equipment with PCBs [1]	23.175	3.942	10.479	Valuation (60%)/Elimination (40%)
Hazardous electrical and electronic waste: equipment containing oil	1,248.046	275.542	539.863	Valuation
Hazardous electrical and electronic waste: Other	132.724	119.476	236.831	Valuation
Nickel-cadmium accumulators	73.102	33.352	15.588	Recycling
Lead batteries	2.131	0.661	1.047	Recycling
Earth impregnated with hydrocarbons	195.348	144.864	204.824	Controlled elimination-landfill
Containers that have contained hazardous substances	7.057	5.600	7.443	Recycling
Absorbent materials, filtering materials, cleaning rags/cloths and protective clothing contaminated with hazardous substances	3.964	2.770	5.594	Valuation (70%)/Controlled elimination-landfill (30%)
Non-halogenated solvents	0.004	0	0	Regeneration (80%)/Elimination (20%)
Halogenated solvents	0.000	0	0.007	Regeneration (70%)/Elimination (30%)
Water-based cleaning liquids	0.059	0	0	Valuation
Paint waste	0.284	1.749	0.890	Valuation (40%)/Elimination (60%)
Insulation material (with or without asbestos)	1.154	0.291	3.276	Controlled elimination-landfill
Laboratory chemical products containing hazardous substances	0.344	0.951	0.415	Elimination (physical-chemical treatment, incineration)
Gases in pressurised containers [2]	7.690	3.120	10.563	Regeneration
Anti-freeze containing hazardous substances	0.080	0.043	0.573	Regeneration (60%)/Elimination (40%)
Florescent tubes	0.517	0.548	0.659	Recycling
Batteries	0.015	0.092	0.039	Valuation
Fuel oil and diesel	1.041	0	0	Valuation
Waste coming from adhesives and sealants containing organic solvents or other hazardous substances [4]	0.000	0.000	0.348	Valuation
Metal contaminated with hazardous substances [4]	0.000	0.000	9.250	Valuation
Total	2,375.019	1,183.925	**2,035.645**	

(1) 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. 10,479 Kg of equipment contaminated with PCBs were managed in 2016.
(2) These wastes deal with used SF_6 gas that is out of specification. The treatment of these wastes, consisting of the regeneration of gas for reuse, takes place outside Spain. This means that 0.32% of total hazardous waste has been transported internationally.
(3) Default Procedure for the contractors responsible for waste management. The total amount of waste which is delivered for recycling is estimated at 48.6%.
(4) New waste item included in 2016.

Waste management type (%) *(*)*

	Non-Hazardous	Hazardous
Composting/Regeneration/Recycling	85	46
Valuation	0	40
Elimination (any method)	15	14

(*) Waste management corresponds to the information provided by the contractor or to the default procedure used by the contractor responsible for waste management

Given the nature of the waste generating activities, it is very difficult to predict the evolution of the quantities generated and set quantitative reduction targets.

Therefore, most of the efforts are aimed at finding better solutions for final management, promoting good practice through training and awareness and seeking the best options among our suppliers.

Red Eléctrica has established processes that help minimise the quantity and the hazardous risk level of waste generated, such as the in-situ regeneration of power transformer oil for its reuse and the avoidance of the need to deal with large quantities of oil as waste. In this line, two opportunities to reduce waste were identified and which are currently being worked on:

- **Minimisation of waste resulting from the cleaning of transformer containment pits. R&D+i project**

The goal of the project is to develop a catalyst that allows, through the utilisation of a mobile plant, for the cleaning of the water from oil containment pits, so that it would only be necessary to manage, through an authorised waste management expert, part of their content (the oil) and not the entire amount (the water-oil mixture).

The treated water could then be reused in the same pits, in order to maintain the level of water needed for them to function correctly. In this way, the waste to be managed and dealt with would be significantly reduced.

The project has been undertaken in two phases. In the first, experimental phase, the contents of different pits were analysed and characterised in a laboratory; in a second phase, practical treatment was carried out in situ at different substations. In both phases, very positive results

were obtained, with very high performance (higher results with the more contaminated waste). In all cases, hazardous waste has been reduced by at least 90%.

During 2017, work will continue on applying the conclusions of this work to the real management of Red Eléctrica's facilities.

❖ 'Sustainable Stock' reverse logistics project

This is a reverse logistics project that faithfully follows the 3R principle: reduce, re-utilise and recycle.

It consists of the sale of materials considered useless for their reuse, or their valuation as waste, through an auction system. The project permits the extension of the useful life of some materials and the total or partial recovery of their components or materials.

In December 2015, the pilot project ended and it became a standard company practice due to it being considered very effective, given that successful solutions were found for 100 % of the materials auctioned (which so far has represented 4% of the total stock of Red Eléctrica).

6.6 Prevention of Soil Contamination and/or Groundwater

Red Eléctrica includes among its environmental risks the risk of contamination of soil or groundwater from leaks or spillages of oils, fuels and hazardous substances. For this reason, it has established numerous preventive and corrective measures to minimise these risks.

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 (especially relevant in 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.

Similarly, 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" through the NCEA (*National Classification of Economic Activities*) 40.1: Production and distribution of electricity and specifically in facilities.

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 different Autonomous Communities and covering different assumptions for which they are necessary. During 2016, 74 PSRs/SRs were presented.

In addition, work has been started in order to demonstrate, through an exploratory analytical investigation of soils, the non-existence of impacts after minor accidents in the following substations:

- *400/220 kV Trives substation*
- *220 kV Sabon substation*
- *220 kV Sobradelo substation*

On the other hand, a final resolution was obtained for the ‘Remediation work for affected soils in the 220 kV Portodemouros substation’, in which the clean-up works for affected soils in the substation was approved. In addition, in the case of the 400 kV Puentes García Rodriguez substation, the required quantitative risk analysis (with acceptable risk result) required after the analytical investigation carried out in 2015 was submitted and is pending response.

In addition, Red Eléctrica works at several levels regarding the concept of soil:

- **Purchase of new land**: prior to the formalisation of the purchase of new land for the installation of a new substation, enlargement, etc…, jointly with geotechnical studies, a soil and groundwater characterisation study is carried out in order to know its state at the time of purchase and to detect, in advance, possible impacts. In the event that no impact is detected, the aforementioned soil and water characterisation establishes the state of the soil before the start of operation of the facility and may be used at some point in time as a reference point to determine in the future if there has been a significant increase in the contamination of soil and groundwater.

During 2016, 2 characterisation studies were carried out in the purchasing process corresponding to land for future substations (Gran Tarajal and Porís). In no case were prior impacts on lands detected.

- **Existing facilities (substations)**: internal regulations establish that whenever a geotechnical study is carried out (due to an enlargement within the perimeter fencing, RPI, etc.), at the same time a sampling of soil and/or groundwater is to be taken in order to determine, in an easy and relatively low cost way, the possible state of the land on which the substation is located; confirm or rule out the presence of contaminants in the subsurface; identify possible sources of contamination, and evaluate the possibility that there may have been anthropic impacts due to activities that may have been previously undertaken on the site.

In 2016, characterisation studies were performed specifically on 4 existing substations *(La Robla, Mequinenza, Morata and Trives)*.

In none of the cases were values of contaminants found to be exceeding the generic reference levels (GRL).

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

Clean-up works were carried out both in the Tajo de la Encantada and Villaviciosa substations as remedial actions in response to accidents occurred in 2015 due to the malpractice of suppliers in the execution of their work.

In the case of Tajo de la Encantada, a total of 1,073 tonnes of affected soils were managed, while in Villaviciosa the final amount of soil managed totals 133 tonnes.

In both cases, the affected soils were restored, bringing the hydrocarbons (TPH – Total Petroleum Hydrocarbons) parameter of the soil within the reference levels of 50 mg/.

In addition, the 4th monitoring of the groundwater quality in the Bessons substation was carried out, after verification of the non-sealing of the oil collection pit of the transformer (TRP 1) following the failure of said equipment and resulting oil leakage. The latest analyses did not detect hydrocarbons concentrations at any of the control points analysed, therefore leading to the request for putting an end to the programme established for the control and monitoring of groundwater.

In the case of those accidents occurred in 2016 involving Oil Filled (OF) technology cables and data about the measures adopted, more information is provided in section 8 '*Accidents with Environmental Impact*' of this Environmental Statement.

- Other related actions

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

In 2016, the project was finalised and knowledge was obtained regarding the current internal risks of the portfolio of substations (657 facilities) regarding soil and water (surface, subsurface and marine) and, depending on the risk determined, a ranking has been established according to the estimated severity of the environmental liabilities – enabling a "risk map" of the facilities to be drawn up with all the information related to each site.

In parallel, the external risk that activities carried out by other agents in the vicinity of the infrastructure pose for the facility was also assessed.

Taking the results of the model as a basis, a subset of electricity substations exposed to greater risk has been selected. A plan regarding these substations has been drafted outlining specific actions for each site with a view to progressively incorporate the model into the scheduling of tasks to be undertaken.

From the results obtained, the most relevant aspect is that 33 substations were identified as having a high or very high internal risk (5% of total substations), with the following aspects being identified as the main risk factors:

- Age of electrical equipment.
- Inadequacies in protection and containment systems.
- Uncertainty regarding the severity of historical impacts of accidental leaks or spillages.
- Proximity to riverbeds vs. effluent systems.
- Environmental aspects that are vulnerable.
- Pollution migration conditions (high soil permeability and presence of shallow groundwater).

Regarding external risk, 36 substations with a high or very high external risk (6% of total substations) have been identified. The main external risk factors identified are the following:

- Substations shared with other utilities (total of 576 substations - 88% of the total).
- Proximity to potentially polluting industrial areas/facilities.
- Pollution migration conditions (high soil permeability and presence of shallow groundwater).

6.7 Stakeholder Groups

Conscious of the social interest in the activities we carry out, we provide constant information to, and maintain dialogue with, all stakeholders.

6.7.1 Attention to Grievances and Claims

We monitor and attend to all enquiries and grievances of an environmental nature which are sent to us by interested parties via electronic mail or the DÍGAME service (Stakeholder Attention Centre) specifically provided for this purpose on our website www.ree.es.

The claims filed are classified by their nature: attention (including complaints, enquiries, suggestions, requests for information and recognition) or grievances.

In 2016, Red Eléctrica managed a total of **72 claims of an environmental nature**, of which **25 resulted in grievances**.

The areas for which stakeholders have contacted Red Eléctrica in the last three years were as follows, noteworthy are the claims and grievances reported to the different organisational units as a result of felling and pruning of flora:

	Evolution of claims			Evolution of grievances (1)		
	2014(2)	2015(2)	2016 (2)	2014	2015(3)	2016(3)
Birdlife	2	4	3	0	0	0
Electromagnetic fields	3	17	9	1	1	0
Consumption/Energy efficiency	0	1	3	0	0	0
Environmental costs	0	0	0	0	0	0
Emissions/Climate change	1	11(4)	9(4)	0	0	0
Impact on the landscape	1	1	0	1	0	0
Facilities/Infrastructure	0	5	10	0	0	7
General environmental information	7	8	4	0	0	0
Waste	5	0	1	2	0	0
Noise	2	3	2	0	1	1
Environmental management system	0	8	8	0	0	0
Flora/Vegetation	18	27	23	11	19	17
Total	39	85	**72**	15	21	**25**

(1) The disciplinary proceedings are detailed in another section.
(2) The result includes all claims received (Attention + Grievances). In 2014, the type of classification changed and all claims not classified as grievance are classified in the same group called Attention. The different types of attention are: Complaints, enquiries, suggestions, request for information notification and recognition.
*(3) Only includes **applicable** grievances in accordance with procedure IQ002.*
(4) This year includes requests of CO2 factors related to the national electricity generation (Data provided by Department of Statistics and Information) as it is data that is requested increasingly more and more by Special Stakeholder Groups.

6.7.2 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 with 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.

The environmental requirements regarding training and specifications for the execution of work, form part of the contractual documentation for those services where it has been identified as necessary.

In the case of the activities with the greatest potential impact, such as construction, renovation of facilities and some maintenance activities, a part of the cost of the work is dependent on the result of the environmental certification of the work, which involves extensive monitoring of the established environmental requirements.

In order to improve the environmental performance of the supply chain, since 2015 work has been underway to adjust the requirements that are requested from the various suppliers to the impacts (real or potential) of each supplier. In 2015, the impacts of each one of the services contracted were identified and in 2016, tests were conducted on a significant group of suppliers. These tests have allowed us to determine the baseline situation and adjust the specific requirements in each case.

It is foreseen that the results of this project will be incorporated into the supplier qualification process in 2017, hence enabling the evaluation of the environmental behaviour of suppliers. The results of the latter will be taken into account in their overall evaluation, and may become grounds for their disqualification.

On the other hand, since 2011, Red Eléctrica has been working on calculating the carbon footprint of all its suppliers. Therefore, in 2017, a working group has been planned whose goal is to establish processes that allow emissions in the supply chain to be reduced and help improve the calculation of emissions associated with the supply chain.

6.7.3 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 environmental training during 2016 was 8% (compared to 7.3% in 2015), corresponding to 135 people and a total of 539 hours of training (compared to 2,462 hours in 2015, a value that was due mainly to the course on the management and handling of SF_6). The hours of environmental training represented 0.4% of the total hours.

6.7.4 Stakeholder relations

❖ **Agreements with the Public Administration**

Through collaboration agreements we work with institutions to carry out activities related to the environment and sustainable development that are of interest to both parties.

At present there are 11 agreements on the prevention and the fight against forest fires in force with 11 bodies of 9 Autonomous Communities: Andalusia, Extremadura, Castilla La Mancha, Valencia, Aragon, the Basque Country (Vizcaya and Guipúzcoa), Navarre, Balearic Islands and Canary Islands (Tenerife and La Palma). The total associated budget is €1.1 million every five years. The goal is to have this type of agreements established nationwide.

The main actions carried out in 2016 within the framework of these agreements are the following:

Territorial scope	Noteworthy projects in 2016 linked to collaboration agreements
ARAGON	Awareness campaign for the prevention of forest fires with the Regional Government of Aragón
CASTILLA LA MANCHA	3rd Working Days entitled 'New technologies in the management of the phenomenon of forest fires' regarding forest fire prevention in Toledo.
	During 2016, Red Eléctrica together with the Regional Government of Castilla La-Mancha and the Pau Costa Foundation took part in the first edition of the 'International Forest Fire Awards 2016'
EXTREMADURA	Course for Forest Fire Fighting Managers for staff of the Regional Government of Extremadura and of the Provincial Government of Vizcaya
AUTONOMOUS COMMUNITY OF VALENCIA	Collaboration in the general informative campaign called '*El Bosc Vital*', launched by the General Directorate for the Prevention of Forest Fires of the Regional Ministry of Agriculture, Environment, Climate Change and Rural Development of the Government of Valencia.

BALEARIC ISLANDS	Awareness campaign for the tourism sector on the prevention of forest fires in the Balearic Islands
CANARY ISLANDS	Volunteering Projects: Forest Fires (Tenerife)
NAVARRE	Provision of personal protection equipment for staff hired for the winter campaign of the Government of Navarra.
	Selective cutting back and clearing of vegetation for the prevention of forest fires in the Atlantic coast basins of Bidasoa and Urumea.
THE BASQUE COUNTRY	Course for Forest Fire Fighting Managers for staff of the Regional Government of Extremadura and of the Provincial Government of Vizcaya

With respect to biodiversity, Red Eléctrica has signed **10 biodiversity agreements** with Autonomous Communities for the implementation of actions.

The mapping project of bird flight paths allows a continuing relationship to be maintained with the biodiversity area of the 17 Autonomous Communities.

❖ Participation in working groups

Working groups	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	
Study committee C·3. (Environment): Secretaryship of the committee	
National CIGRE committee (Environment committee)	
Environment Community, Committee and different working groups	AEC (Spanish Association for Quality)
Working group on electromagnetic fields	UNESA
Project INSPIRE-Grid (emPOWERing people)	European Union and RGI (Renewables Grid Initiative).
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 Initiative Company and Biodiversity
Working group on 'The Company and Biodiversity'	CONAMA
Working groups - ST-21 "The challenges of protected natural areas" - GT9: Business and Biodiversity. Mitigation Ranking - Practical workshop. Mitigation Ranking - GT5: Mobility at work	CONAMA
Spanish Green Growth Group. Various working groups	Grupo Español de Crecimiento Verde
Climate Change Cluster	Forética

WG - WORKING GROUP

❖ Congresses and informative sessions/days

Congresses and informative sessions	Organiser
Sustainable mobility plan. A challenge for Red Eléctrica. Course on biodiversity business management. Participated with the presentation: Biodiversity in Red Eléctrica	CES (Excellence in Sustainability Club)
- Growth of the Osprey population in Andalusia. Migres Foundation. -Transferring Eagles with energy: the reintroduction of the Bonelli's Eagle in Majorca with the collaboration of Red Eléctrica. Service for the Conservation of Species of the Government of the Balearic Islands.	Doñana International Bird Fair
Identification and reduction of the impact of electricity infrastructure on threatened birds of prey in the Mediterranean: -Technical requirements for the installation of new electricity lines. Red Eléctrica - Birds and Power Lines: mapping of bird flight paths. Asistencias Técnicas CLAVE.	Organised by UICN, Regional Government of Andalucía, Migres Foundation and y International Bird Migration Centre (CIMA).
Restoration of Posidonia oceanic seagrass meadows	Management of Biodiversity 2016 in the Royal Botanic Garden of Madrid.
Sponsorship of the Congress	Natural Capital Summit

6.7.5 Communication and dissemination of environmental information

During 2016, as a result of the loss of information caused by an incident on the Company's web analytics server, there has been an incorrect / incomplete visualisation and reading of the access and download data of the Company website therefore, it is not possible to provide reliable data or any comparison with previous years.

The main publications regarding environmental matters in 2016 were:

- **Corporate Responsibility Report 2015**
- **EMAS Environmental Statement 2015**

Two related sections of the Red Eléctrica website (www.ree.es) are worth mentioning:

In the ‘Natural Environment’ subsection of the ‘Sustainability’ section of the website there is a section "Environmental Permitting Process" where the environmental permitting process of projects is described and where the documents associated to each phase linked to projects that are in the processing stage are published:

http://www.ree.es/en/sustainability/the-natural-environment/status-of-the-environmental-permitting-process-of-projects

The Map of projects section includes 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

Additionally, in 2016 the following new videos were produced and uploaded:

- Video regarding spiral bird-flight diverters 'Minimising the risk of collision'
- Video on the impact of food supplementation on the spatial and reproductive ecology of Bonelli's Eagle.

http://www.ree.es/en/videos

In the Blog ‘*Entrelíneas*’ the following news of an environmental nature have been included:

- ✓ “Latest news” section: 16 out of a total of 58 (27%)
- ✓ “Observatories” section: 2 out of a total of 6 (33%)
- ✓ “Learn more” section: 2 out of a total of 4 (50%)
- ✓ “Videos” section: 2 out of a total of 4 (50%)

❖ Internal communication

Since September 2015, the Company has a new miRED, so 2016 is the first of which data is available to report on the impact of miRED on internal environmental communication:

o Visits to miRED:

	2016
Environmental Section	Average of 24 visits/month
'Red Eléctrica eficiente' Community	49 followers
'Sustainable Mobility' Community	61 followers

o News published in miRED:

- 25 news items published in the "carousel".
- In addition, the miRED wall is open for all Company employees to publish news that is of interest.

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, canteen and coffee break areas) shall be used for this communication purpose.

- **Energy efficiency: 3 March 2016 – World Energy Efficiency Day**

Red Eléctrica positions itself through the publication of external messages on social networks, the corporate web and to all staff through the internal communication tools devised for this purpose:

Press release:

- *On the occasion of World Energy Efficiency Day*
  Red Eléctrica presents awards to its 2015 energy efficiency projects

Messages on social networks:

- *If you know the electricity system better, you can be more efficient. Red Eléctrica explains it to you. #DíaMundialdelaEficienciaEnergética*
- *Know the hourly price of the electricity you consume in your home at: http://www.ree.es/en/activities/operation-of-the-electricity-systemvoluntary-price-small-consumer-pvpc #DíaMundialdelaEficienciaEnergética*

- *At home, do you normally consume the same amount at night as during the day? Have you heard of hourly discrimination? http://www.ree.es/en/activities/operation-of-the-electricity-systemvoluntary-price-small-consumer-pvpc #DíaMundialdelaEficienciaEnergética*

- *'Red Eléctrica presents awards to its 2015 energy efficiency projects' #DíaMundialdelaEficienciaEnergética*

- *Take advantage of the lower demand during the night-time hours in order to schedule your household electricity consumption. More info at: http://www.ree.es/en/red21/the-active-consumer #DíaMundialdelaEficienciaEnergética*

- *You are the protagonist of the electricity system. Use energy wisely. http://www.ree.es/en/publications/sustainability-and-environment/smart-consumption-guide #DíaMundialdelaEficienciaEnergética*

Actions with employees:

- *Employees visit the Valdemingómez recycling and energy recovery centre*
- *Workshop for employees regarding the electricity bill*

- **22 March: World Water Day.**

Publication of messages using the various internal communication channels. Messages issued from the United Nations (UN) on its 2016 World Water Day Campaign.

Water challenge: we propose a new way to save water through the promotion of the reduction of the water footprint, 'Does your bottle drink your water?' Our challenge: zero consumption of bottled water in plastic containers. Plastic water bottles have been removed from the vending machines of the work centres of La Moraleja and Albatros.

News on the intranet:

- *World Water Day 2016: "Water and employment".*
- *Today is World Water Day: Water and Employment.*
- *Does your bottle drink your water?*
- *Water challenge achieved!*

Messages:

- *Does your bottle drink your water? March 22 World Water Day.*

- **May 17: International Recycling Day.**

Publication of messages using the various internal communication channels.

News on the intranet:

- *Don't throw it away, recycle!*

Throughout the year:

- *Recycling through civility.*
- *Spaniards are recycling more and more.*
- *The Madrid City Council and Ecoembres launch the ...*
- *Recycling, an example of a circular economy.*
- *Paper and cardboard recycling is growing in Spain.*
- *We all count - Recycle!*

In addition, on the occasion of the World Recycling Day, an informative day 'Circular economy. Waste as a resource' was held in Xirivella (Valencia) in which Red Eléctrica participated with the exhibition sustainable stock project (distinguished in the fourth edition of the REeficiente awards).

- **16-22 September: European Mobility Week.**

Actions linked to mobility week. Publication of messages using the various internal communication channels:

- *Europe celebrates its European Mobility Week*
- *22 September. Today is Europe Without a Car Day "Changing our customs can make a difference"*

6.8 Research and development

During 2016, R&D+i expenditure of an environmental nature totalled 440,738 euros. This amount represents 5.14% of the total expenditure on R&D+i.

With the collaboration of all the areas involved, the following R&D+i projects stand out from the point of view of sustainability and the environment:

Development of a modular, sustainable and flexible transformer	The objective of the present project is the development of a modular transformer, consisting of single-phase banks that allow the interchangeability with existing three-phase or single-phase units, of a sustainable nature, or with low environmental impact, using hybrid technology that reduces the size and weight required. It shall also have the monitoring systems required to enable predictive maintenance and flexible operation in emergencies.
Validation of natural esters as cooling fluid	Substitution of mineral oil with natural esters (vegetable oil) in standardised power transformers. Completed in 2016.
Analysis of conductor displacement	The object is to delve into the knowledge regarding the real conditions of displacement of the conductors of overhead lines when they are subjected to wind action.
Use of Posidonia oceanica seeds and fragments	The objective of the present project is to define and develop the necessary actions to validate the replanting technique which uses seeds of Posidonia oceanica germinated in the laboratory and fragments of Posidonia oceanica obtained from natural fragmentation of Posidonia seagrass meadows as a technique that can be used to mitigate the impact on these meadows that may result from the work necessary for the laying of electricity cables.
Oficina horizonte 2020	The objective is to demonstrate the feasibility of ending the use of traditional media (paper, CD, etc ...) and optimising the control of information that is handled electronically (e-mails, etc.) at work by a large number of units within Red Eléctrica.
ACURED – Noise reduction in substations	The project emerges as an opportunity to: - Identify and characterise noise sources in facilities. - Analyse the current legislation on noise. - Study possible solutions to reduce noise and make proposals for effective noise reduction. - Define and develop solutions to reduce noise emission in the vicinity of electricity substations.
Study on the use of transmission lines as stepping-stones for fauna	Study the possibility of the intelligent use of linear infrastructures as stepping-stones for fauna of the various protected natural areas throughout the Iberian Peninsula, Balearic Islands and Canary Islands and their connections with the electricity lines of Portugal and France.
Tecnosuelos	The objective of the present project is to delve into the knowledge regarding certain types of soils designed with specific characteristics that could be used for different objectives in Red Eléctrica. There are experiences with hyper dystrophic soils (without vegetative development) that prevents the appearance of any type of vegetation. Its possible use in the complete set of substations would avoid having to carry out the clearing work by using herbicides that have to be used currently.
Vegeta 2	Second phase of the project. Includes the expanding the VEGETA Cycle to Extremadura, the navigability of accesses
Methodology for repairing SF6 leaks in GIS	It is a project for the development of a methodology and systems for repairing SF_6 leaks in GIS that are different from conventional repair systems, which always involve the dismantling of GIS compartments and the conducting of subsequent AT tests.
Geothermal HVAC	Implementation in the building in San Sebastian de los Reyes

7 OBJECTIVES - ENVIRONMENTAL PROGRAMME

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

The Environmental Programme of Red Eléctrica contains the set of environmental improvements which we intend to carry out throughout the term of one year. This Programme describes the environmental objectives which may be annual or multi-year, and includes the milestones throughout the year for achieving each of these objectives.

Due to the degree of complexity of the activity carried out by Red Eléctrica, the geographical distribution and the multiplicity of actions, the Environmental Programme defines objectives which are directly linked to the improvement of environmental aspects and other objectives which contribute to environmental improvement of the processes.

The total fulfilment of the Environmental Programme is the result of the completion of the different objectives planned for each year. The contribution of each objective to the environmental programme is weighted according to its importance based on a total of 100 points.

To achieve each objective, a set of milestones are defined. The annual fulfilment of each objective is the sum of the fulfilment of the milestones which are foreseen to be carried out in the period of time established.

The global fulfilment of the Environmental Programme 2016 was 87%.

The table on the following page summarises the objectives addressed during 2016 indicating the contribution of each one of them to the Programme and their level of fulfilment within the year.

ENVIRONMENTAL PROGRAMME 2016

Landscape integration of facilities

Aspect group / Associated processes	Scope of environmental improvement	Objectives	Character/ term	Weighting	Fulfilment	%
Presence of facilities. Definition of the project.	Prevention of impacts on the environment	Identification, from a social and scenic point of view, of critical points and sections of existing lines of the Transmission Grid *(Objective 1)*	Annual	8	8	**100**
Presence of facilities. Maintenance process.	Prevention of impacts on the environment	EMFs (Electromagnetic Fields) measurement plan in insular systems *(Objective 2)*	Multi-year (2015-2016)	6	6	**100**
Presence of facilities. Maintenance process.	Prevention of impacts on the environment	ArqueoRED project: Improvement of knowledge on the current situation of elements within the sphere of influence of the transmission grid *(Objective 8)*	Annual	8	0	**0**

Improvement in the environmental aspects of facilities/infrastructure of the Transmission Grid

Aspect group / Associated processes	Scope of environmental improvement	Objectives	Character/ term	Weighting	Fulfilment	%
Presence of facilities. Maintenance process.	Prevention of impacts on the environment	Prioritisation in the siting of REE's facilities based on potential environmental risk (Risk planning/mapping) *(Objective 10)*	Multi-year (2015-2016)	10	10	**100**
Maintenance process.	Appropriate overall waste management	Waste management optimisation plan *(Objective 11)*	Multi-year (2015-2016)	8	8	**100**

Climate change, energy efficiency and saving of resources

Aspect group / Associated processes	Scope of environmental improvement	Objectives	Character/ term	Weighting	Fulfilment	%
Emissions	Reduction of greenhouse gas emissions	Improvement in the calculation of Red Eléctrica's carbon footprint and extending its scope *(Objective 3)*	Multi-year (2014-2017)	6	6	**100**
		Improvement in the management of data related to eco-efficiency in the Regional Transmission work centres *(Objective 4)*	Annual	10	10	**100**
		Reduction of SF_6 gas emissions *(Objective 5)*	Multi-year (2011-2020)	15	15	**100**
Energy efficiency	Activities regarding significant environmental aspects	20% reduction in energy consumption by 2020 *(Objective 6)*	Multi-year (2011-2020)	5	0	**0**

Biodiversity

Aspect group / Associated processes	Scope of environmental improvement	Objectives	Character/ term	Weighting	Fulfilment	%
Biodiversity	Prevention of impacts on the environment	Reduce the risks of the existing facilities/installations on birdlife *(Objective 7)*	Multi-year (2011-2020)	10	10	**100**
Biodiversity	Prevention of impacts on the environment	Habitat project: Improvement of knowledge on the current situation of the Habitats of Community Interest (HCIs) within the sphere of influence of the transmission grid *(Objective 9)*	Multi-year (2011-2020)	6	6	**100**

Improvement in the relationship with stakeholders

Aspect group / Associated processes	Scope of environmental improvement	Objectives	Character/ term	Weighting	Fulfilment	%
Communication / Awareness	Activities regarding other aspects	Improvement of social acceptance and external dissemination of environmental knowledge *(Objective 12)*	Annual	8	8	**100**
TOTAL FULFILMENT				**100**	**87%**	

❖ **Summary of the execution of environmental objectives**

- **Environmental course of action: Integration of facilities into the landscape**

OBJECTIVE 1 - Identification, from a social and scenic point of view, of critical points and sections of existing lines of the Transmission Grid

Description: Application of the methodology for conducting the Landscape and Visual Impact Assessment in Environmental Impact Studies in a pilot project in the province of León. A project that, by means of a single Geographic Information System, analyses data regarding the impact that power lines may have on the landscape as well as on the social and economic aspect.

Actions 2016: implementation of the methodology in a pilot project carried out in the province of León.

Status: Finalised. For 2017, the continuation of the identification of critical points and line sections of existing transmission lines that may have an impact from a social and landscape point of view is under consideration: extension of scope and implementation at a national level (initially in 3 Autonomous Communities (CC.AA) during 2017).

Fulfilment: 100%

Actions in previous years:

- 2011: the design for the landscaped integration of 8 types of substation buildings was carried out.
- 2012: the engineering for the landscaped integration of 11 types of building was carried out: High mountain GIS (*Gas Insulated Switchgear*); High mountain open-air; Balearic Islands GIS; Balearic Islands open-air; South coast GIS; South coast open-air; Valley GIS; Valley open-air; Canary Islands GIS; 'Ingenio' GIS and Coastal Plain GIS.
- 2013: the engineering was performed for the design of these latest models: 'Candelaria', North coast, Volcano and Desert. The implementation of the model began by incorporating the Desert design at the Sabinal Substation.
- 2014: The methodology for both lines and electricity transmission substations was defined through two documents. The implementation of an electricity line methodology could not be completed in an impact assessment study, which was therefore left pending for 2015.
- 2015: A methodology was established for conducting the Landscape and Visual Impact Assessment in the Environmental Impact Assessments for both substations and electricity lines. The methodology allows the application of the European Landscape Convention for the various substation and line projects in a homogeneous way and allows the identification of the alternative with the least impact from a landscape point of view.

OBJECTIVE 2 - EMFs (Electromagnetic Fields) measurement plan in insular systems

Description: True EMF measurements continue to be taken in order to know the values of both electric and magnetic fields generated by the facilities at sensitive points identified in 2015. It is possible that measures may be taken depending on the results obtained.

Actions 2016: carrying out 70% of the total planned measurement points (remaining 30% already carried out in 2015). In 2016, 12 points have been measured in the Balearic Islands and 19 in the Canary Islands, whereby all those planned for the year have been carried out.

Status: Continued in 2017. In 2017, it is foreseen to draft a report on the results and conclusions based on the values obtained in the island systems during 2016 and 2017.

Fulfilment: 100%

Actions in previous years:

- 2015: all critical points were identified and defined for both archipelagos, with 30% of the planned measurement points being carried out.

OBJECTIVE 8. ArqueoRED project: Improvement of knowledge on the current situation of elements within the sphere of influence of the transmission grid

Description: digital mapping of catalogued heritage information for consultation prior to the planning of works. In this way, potential impacts can be avoided and the necessary measures in each case can be implemented in advance.

Actions 2016: obtaining and developing digital mapping of the catalogued elements of 17 Autonomous Communities in a 200-metre area on each side of each of the existing electricity lines and within a radius of 500 metres from the centre of existing substations.

Status: Continued in 2017. For 2017 it is planned to have the remaining data from 3 Autonomous Communities and to carry out the field review in 2 Autonomous Communities in order to verify the results.

Fulfilment: 0%. The target cannot be considered fulfilled 100% as the mapping of the 17 Autonomous Communities are not completed in GEORED, but it could be objectively considered to be 90% complete. By the end of 2016, the complete data of 14 Autonomous Communities was already published in GEORED. The only data pending to be published is that which is missing from several provinces of 3 Autonomous Communities: Balearic Islands, Canary Islands and Andalusia. The delay is due to the difficulty in obtaining certain archaeological data and the absence of digitally catalogued information, which has meant that paper documents have had to be put into a digital format.

- **Environmental course of action: Climate change energy efficiency and the saving of resources**

OBJECTIVE 3 - Improving the calculation of the carbon footprint of Red Eléctrica and broadening the scope.

Description: To develop a methodology to calculate the carbon footprint of Red Eléctrica with sufficient reliability to define, where appropriate, measures to reduce emissions.

Actions 2016: The second methodology stage has been completed with the development and validation of the carbon footprint calculation model based on actual implementation and installation data, data regarding the in-service operations and maintenance stages as well as data from the decommissioning and final disposal stages. In addition, the calculation tool developed in the first phase (Phase 1 in 2015) is updated and improved so as to provide a calculation of the carbon footprint based on actual data of the construction process.

Fulfilment: 100%

Status: **Continued in 2017.** As a follow-up to the objective, for 2017 it is proposed to carry out a real calculation test of an electricity line using the methodology developed during 2015-2016 and to begin with the definition of a theoretical calculation model for substations and cables. In addition, the possibility of extending the scope of the calculation of the carbon footprint to equipment related to telecommunications activity will be assessed.

Actions in previous years:

- 2011: the methodology was developed for calculating indirect emissions and CO_2 not released into the atmosphere due to the transmission grid.

- 2012: the model for the collection of emission data and the methodology for identifying and offsetting emissions associated with the institutional events of Red Eléctrica was developed and was applied to three events. In addition, the initial calculation of emissions from the supply chain was done. The only milestone that did not reach a critical level in 2012 was the conducting of an emissions inventory, for the regional offices, due to the lack of the necessary data.

- 2013: the calculation of emissions from the supply chain was done, for which 10 key suppliers were used for the calculation.

- 2014: Verification has been performed by a third party (PWC) of the carbon footprint of the organization (includes the calculation method) in accordance with ISAE 3410 "Assurance Engagements on Greenhouse Gas Statements". No work has been carried out for the development of a methodology for calculating the carbon footprint of the lifecycle of an electricity transmission line and is postponed to 2015.

- 2015: a first phase of the methodology was executed with the development of a theoretical model for the calculation of the carbon footprint associated to the useful life of an overhead line, based on the data available from the implementation project. Similarly, a calculation tool was developed to determine the carbon footprint of an overhead line in the project phase, prior to its execution.

OBJECTIVE 4. Improvement in the management of data related to eco-efficiency in the Regional Transmission work centres.

Description: Carrying out of a series of actions geared towards improving the data regarding the electricity consumption of facilities.

Actions 2016: two actions were undertaken throughout 2016.

The first action is directed to the review of the situation of the energy management equipment of Regional Offices and the definition of a verification protocol for the operation of the energy management equipment installed in the buildings of the work centres of the Regional Offices. In addition, a system of indicators for the monitoring of electricity and water consumption is defined for the work centres of the Regional Offices.

The second action consists in defining the state of the energy management systems in the work centres of the Regional Offices.

Fulfilment: 100%

Status: Finalised. The results obtained have enabled the identification of those work centres that do not have energy efficiency equipment (electricity and water) and therefore, it is foreseen that such equipment be installed in all work centres in a period of two years (2017-2018). In addition, in 2017 it is planned to start collecting data and monitoring indicators regarding the energy and water consumption from work centres on a monthly basis and also expanding this action to buildings whose management belongs to the General Services Department.

OBJECTIVE 5 - Reduction of SF_6 emissions

Description: Reduce the rate of SF_6 emissions in Red Eléctrica through the improvement of the process associated to the comprehensive management of the gas.

Actions 2016: Define internal criteria related to the reduction of SF_6 leaks (preventative maintenance guidelines, corrective maintenance criteria and the criteria to be taken into account when proposing the replacement of equipment) and revision of action criteria for the management of SF_6 equipment at their end of useful life.

Fulfilment: 100%

Status: Finalised. The corporate information systems (SIGIPM) are adapted to include the management of the process. The criteria regarding the action guidelines for leaks are reviewed and IT451 'Management of incidents with SF_6 gas in switchgear' is incorporated into the internal regulations. The criteria for action and the traceability of information regarding the management of SF_6 equipment at the end of its useful life was reviewed; defining and incorporating the criteria into the regulations in IT018. Also, criteria to be transferred to suppliers regarding the handling and management of equipment with SF_6 gas has been included in specification EA004.

Actions in previous years:

- 2011: The collection of data for the emissions inventory began along with the implementation of a comprehensive management process of the gas without reaching the established critical level. Replacement of old equipment with more efficient ones in accordance with that planned was carried out.

- 2012: The objectives from the prior year were continued, but no progress was made. Red Eléctrica was accredited as a training and assessment body on SF_6, nevertheless it was not possible to begin training the staff. Progress continued on replacing old equipment with more efficient ones in accordance with that planned.

- 2013: Progress was made in obtaining the inventory for the Regional areas based on the mass-balance, but the data collection phase was not concluded and therefore it was not inventoried. Both the plan to provide efficient management devices and measures as well as the training of employees on the handling of this gas were carried out.

- 2014: The register and inventory of emissions of all regional areas for 2014 was obtained. In addition, the methodology for data recording and collation concerning SF_6 management has been established and validated.

- 2015: The establishment of an SF_6 Leak Reduction Plan could not be carried out for different reasons. The target was reformulated for 2016.

OBJECTIVE 6 - Reduction of energy consumption

Description: Establish measures that allow the reduction of electricity consumption in Red Eléctrica's facilities.

Actions 2016: Replacement of supply and return ducts of CL-1 and CL-2 HVAC equipment of the East Building, in roof areas, improving the insulation.

Fulfilment: 0%

Status: This action is not expected to be resumed in 2017. The General Services department estimates that the budget for carrying out the action is high, and bearing in mind that works will begin in the near future for the construction of a new building and remodelling of the rest (with the consequent modification of the existing HVAC systems), have decided to not carry out the action for the moment.

Actions in previous years:

- 2011: The actions in substations were geared towards, on the one hand the identification of consumption points that could be improved in substations (transformers, lighting and HVAC equipment) and on the other the commencement of the standardisation of criteria for lighting. In buildings, an energy audit plan began in order to implement passive measures for reducing consumption. To encourage good practices, a communication plan was drafted and the start of mobility plan was proposed that has not yet come to fruition.

- 2012: the work started in 2011 for the standardisation of lighting in substations, on energy audits of buildings and the implementation of passive measures (1 centre) was continued.

- 2013: Standardisation documentation was obtained concerning the optimisation of lighting in open air switchyards. Against expectations, no passive measure to reduce consumption in work centres was implemented.

- 2014: A Guide has been drafted for the improvement of energy efficiency in substations identifying opportunities and proposing improvement actions. It has been possible to implement passive measures to reduce consumption in work centres, such as the installation of motion-sensor lighting control systems for elevator accesses in basements and incorporating control systems in toilet areas of the head offices. In addition, this year in the head offices, as an awareness raising measure, signs were posted detailing best practices regarding energy efficiency matters for the personnel of outsourced works such as maintenance, kitchen and cleaning work.

- 2015: The report on "Measures in auxiliary services systems for transmission grid facilities: energy efficiency" was drafted. Said report will serve as a supporting document for the future objectives and goals developed on the subject. In addition, the piping on the roof of the East building has been insulated and the aluminium carpentry of the façade of both the North and South buildings, all belonging to the main Head Office (La Moraleja), has been replaced.

- **Environmental course of action: Biodiversity**

OBJECTIVE 7 - Reduce the risks of the existing facilities/infrastructure on birdlife

Description: To have an in-depth knowledge of the sensitive areas throughout Spain in which birds may be prone to colliding with electricity lines due to the characteristics of the flight paths they use throughout the areas, in order to more precisely determine the sections of line to be marked and act in the identified areas so as to reduce the risk to birdlife. In addition, the objective is to implement a methodology for the collection and analysis of data of accidental bird collisions.

Actions 2016: Drafting of the multi-year prioritisation plan for line marking actions, installation of bird-saving devices, for electricity transmission lines in the remaining 10 Autonomous Communities that still did not have it and installation of the signage included in the marking plan for 2016 in the Balearic Islands and the Canary Islands.

Fulfilment: 100%

Status: **Continued in 2017.** Proceed with the design of the Implementation Plan of the 2016-2021 multi-year marking plan for all Autonomous Communities (except the Balearic Islands and the Canary Islands that have already been carried out).

Actions in previous years:

- 2011: A risk map of bird collisions was drafted which was later redefined in the 'Birds and power lines: Mapping of bird flight paths' project.

- 2012: The 'Birds and power lines: Mapping of bird flight paths' project was continued with although with a slight delay due to issues associated with the contracting of external services. Electricity lines located in sensitive areas with a risk of bird electrocution were analysed to establish an adaptation plan.

- 2013: The 'Birds and power lines: Mapping of bird flight paths' project was rolled out in 5 of the Autonomous Communities where it was pending execution. Sections of 5 electricity lines in the Community of Madrid were marked as they are located in conservation areas for the Great Bustard.

- 2014: The 'Birds and power lines: Mapping of bird flight paths' project continued in the rest of the regions in which it was pending execution. The design of the multi-year plan for the prioritisation of marking all lines on the island systems (Balearic Islands and Canary Islands) with bird-flight diverters was established. 100% of the environmental supervisors received training on the methodology and protocols necessary for the collection and analysis of accidental bird collisions with electricity lines, so as to allow the systematisation and standardisation of sampling and the monitoring of the different geographical areas nationwide.

- 2015: The 'Birds and Power Lines: Mapping of bird flight paths' project was continued with the design of multi-year marking plans in the Autonomous Communities of Valencia, La Rioja, Navarra, Cantabria and Asturias. Therefore, at the end of 2015, multi-year plans are available for seven of the 17 Autonomous Communities. On the other hand, 100% of those in charge of drafting Environmental

Monitoring Plans (EMPs) received training on the new methodology developed regarding birdlife EMPs in the operation phase of the facilities.

OBJECTIVE 9. Habitat Project: Improving knowledge on the current situation of HCIs* within the sphere of influence of the transmission grid.

Description: development of a series of actions that allow the digital mapping of the 'priority' Habitats of Community Interest (HCIs) in the sphere of influence of the infrastructure of the transmission grid.

Actions 2016: the revised digital mapping of 5 Autonomous Communities (Aragón, Castilla La Mancha and Castilla y León, Balearic Islands and Extremadura) is produced. Each includes an explanatory report of each Autonomous Community. At the end of the year, mapping was available for a total of 10 Autonomous Communities.

Fulfilment: 100%

Status: Continued in 2017. For 2017, its continuity will be considered with the drafting of 7 new mapped Autonomous Communities and the results obtained in all the Autonomous Communities will be validated technically (End of Phase 1). Phases 2 and 3 are planned until 2020.

Other actions in previous years within this environmental course of action:

- 2015: The revised digital mapping of 5 Autonomous Communities (Asturias, Cantabria, La Rioja, Murcia, Navarra) has been produced.

- **Environmental course of action: Improvement of the environmental aspects of facilities and infrastructure of the Transmission Grid**

OBJECTIVE 10 - Prioritisation in the siting of Red Eléctrica's substations based on potential environmental risk

Description: The objective is to obtain a deeper knowledge concerning current internal risks regarding lands and waters (surface water, groundwater and marine waters) in the portfolio of substations and, depending on the resulting risk, define a hierarchy according to the estimated severity of the environmental liabilities in order to obtain a "risk map" of the facilities with all the data related to each siting/location.

The results achieved will enable all possible environmental liabilities to be managed in the most effective way, and optimise the management of liabilities and channel the use of preventive resources (human and financial) preferably towards those locations where the potential relevance of environmental liabilities is higher.

Concurrently, the external risk for the facilities that may be generated by activities carried out adjacently by other agents (shared substations) and/or in surroundings with the capacity for potential soil and groundwater contamination, and/or historically on that location and therefore risk generator factor from an environmental point of view, will be assessed.

Actions 2016: Phase II has been carried out, with all the facilities (657 substations) having been evaluated according to the methodology, and a plan of action has been established.

Fulfilment: 100%

Status: Finalised. In 2017, it is planned to study and interpret the results obtained and integrate the actions in the PAMA (Plan of pending actions of an environmental nature). Additionally, the results obtained can be used to manage the periodicity of the inspections of substations that pose a greater risk.

Other actions in previous years within this environmental course of action:

- 2015: Stage 1 of the project has been conducted, a stage in which an assessment methodology has been established and all critical facilities (substations with transformer capacity) have been assessed.

OBJECTIVE 11 - Waste management optimisation plan

Description: Identifying alternatives to improve the overall management of waste generated within Red Eléctrica's scope of activities.

Actions 2016: Implementation of the best final management for waste generated by Red Eléctrica (after analysis conducted in 2015). The best management for each of the waste generated is identified and is included in a draft document (contaminated switchgear).

Fulfilment: 100%

Status: Finalised. This will be progressively implemented throughout 2017 thru the drafting of documents of the different waste and that will set out the best final management to give to the waste generated.

Other actions in previous years within this environmental course of action:

- 2015: In an early stage, with waste generation data of 2014, the type of treatment/disposal regarding the final management applied to our waste was identified, and alternatives to improve waste disposal management were also identified.

- **Environmental course of action: Improvement in the relationship with stakeholders**

OBJECTIVE 12. Improvement of social acceptance and external dissemination of environmental knowledge.

Description: improvement of the social acceptance of the projects of electricity interconnections between Spain and France via Aragón.

Actions 2016: Within the framework for the definition of the institutional strategy for the acceptance of international interconnections, a plan of specific actions is defined aimed at improving the public's acceptance of the international interconnection project via Aragón.

Fulfilment: 100 %

Status: Finalised (annual objective)

Other actions in previous years carried out within this environmental course of action:

- 2011: design of a new format of the environmental section on the external website.
- 2012: dissemination of offsetting measures regarding Red Eléctrica's projects.
- 2013: a total of 27 press releases of an environmental nature were published in the media.
- 2014: a map of REE's contribution to society was drawn up and published on the Company's website.
- 2015: The publication "50 Hz Electrical and Magnetic Fields: Analysis of the current state of knowledge" (revision 2015) was completed and updated.

8 ACCIDENTS WITH ENVIRONMENTAL IMPACT

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 consequences in the last three years is reflected in the following table:

Incidents reported	2014		2015		2016	
	Accident	Incident	Accident	Incident	Accident	Incident
Construction activities	0	22	0	67	**1**	**44**
Fires due to fault in lines	0	0	0	0	0	0
Fires due to fault in substations	0	1	0	0	0	0
Leaks and spillages of oil due to error in the filling of transformers	0	0	0	2	0	0
Leaks and spillages of oil and hydrocarbons due to minor breakdowns during the use of machinery during construction works	0	19	0	60(4)	0	33
Leaks and spillages of hazardous substance due to explosion of equipment (4)	-	-	-	-	1	0
Leaks and spillages of hazardous substance	0	1	0	2	0	4
SF_6 leaks (2)	-	-	0	1	0	1
Effects on flora	0	1	0	2	0	6
Maintenance activities (1)	4	21	13	30	**14**	**43**
Fires due to fault in lines	0	1	2	1	1	1
Fires due to fault in substations	0	0	1	1(3)	1	1
Towers brought down due to severe weather conditions	0	0	0	0	0	0
Leaks and spillages of oil and hydrocarbons during the use and maintenance of substation equipment	2(3)	17	4	25	5	36
Oil leaks in lines	1	0	2	0	5	0
Floods	0	0	0	0	0	0
SF_6 leaks due to explosion of equipment or other accidents	1	1	4	0	2	1
Leaks and spillages of hazardous substances	0	1	0	3	0	3
Effects on flora (2)	0	1	0	0	0	1

(1) Bird collisions with power lines in service and under construction are discussed in a separate table (collisions recorded in GEMA)
(2) A new category of accident was included in 2015 with respect to 2014 called SF6 Leaks
(3) Fire in adjacent plot to the substation
(4) Leaks or spillages due to explosion of equipment in construction is included for the first time.

- In the construction phase, **there was 1 accident with environmental consequences during 2016,** representing 7% of the total number of accidents. There were also 44 incidents, representing 51% of total environmental incidents (construction + maintenance).

- In the maintenance phase, **there were 14 accidents**, representing (93%) of those which occurred during 2016. There were also 42 incidents, which represent 49%. Accidents are linked to the following: 10 of them to leaks and spillages of oils and hydrocarbons (72%), 2 to SF_6 leakage (14%), and 2 due to fires (14%):

Five accidents have been evaluated as major (category 4 on a scale of 5) and all of them occurred in two submarine interconnection cables:

1. Balearic Islands (132 kV Cala Mesquida - Cala'n Bosch cable): both in the underground section and in the submarine section
2. Strait of Gibraltar (400 kV Tarifa-Fardioua 2 cable): submarine stretch in Moroccan jurisdictional waters.

All these accidents were communicated to the relevant administrative authorities. In the case of the interconnection cable with Morocco, this was first reported to the Spanish Maritime Safety Agency indicating that the accident took place in Moroccan jurisdictional waters and then subsequently to the relevant environmental body.

In addition, all of these are linked to a hydrocarbon leak (cooling fluid) from cables with OF (Oil Filled) technology. The situation of each of them is summarised below:

- Incident in the Majorca-Menorca link, January 2016, on the land section of the cable in Menorca. An oil leak was located which was coming from a tiny hole in the lead jacket of the cable sheath, causing an estimated leakage of 10,000 litres of oil into the soil. Red Eléctrica undertakes a procedure for the recovery of the affected soil and groundwater. At the time of writing this Environmental Statement emergency measures are still being applied and in parallel a project for the recovery of soil and groundwater is being designed.

- Incident in the Majorca-Menorca link, July, due to the sectioning of one of the four cables caused by the anchor of a yacht anchoring 700 metres offshore from Cala en Bosc beach (depth of 15-20 metres), with the resulting leakage of the oil contained within the cable. The amount of oil spilled into the sea is estimated at about 18,000-20,000 litres. Appropriate measures were taken to close and clean the marine environment and the affected beaches, and adequate management of the waste generated was carried out. An environmental inspection and supervision of the work for the detection of the location of the fault in the land section was established. As part of the environmental inspection, laboratory analyses were conducted of the potential waters and soils to be contaminated by a hypothetical spillage. Additionally, on the spot organoleptic tests were carried out with hydrocarbon detection equipment. Water samples were taken and an environmental monitoring of the underwater repair work was carried out. The location of the fault was in Red Natura 2000 (*Marine SCI 'Canal de Menorca' code ESZZ16002*).

- Incident in the Majorca-Menorca link, August. Two new submarine cable leaks were detected, 500 and 800 metres off the coast of Cala'n Bosc, following the repairs and replacement of the section affected by the incident in July. The amount spilled into the sea is estimated at 300 litres of oil. The location of the fault was in Red Natura 2000 (*Marine SIC 'Canal de Menorca' code ESZZ16002*).

- Incident in the Majorca-Menorca link. In October, a new leak was detected in the land section in Majorca, through a tiny hole in the cable sheath, resulting in the leakage of 3,620 litres of oil onto the beach of Cala Mesquida. Different characterisations of soils and waters have been made in order to determine the extent and depth of the affected area. Red Eléctrica undertakes a procedure for the recovery of soil and groundwater. The location of the fault is on the beach of Cala Mesquida located in Red Natura 2000. The study area belongs to the Natura 2000 Network (*SCI and SPA of 'Muntanyes d'Artá' code ES0000227*).

- Incident in the second circuit of the 400 kV Tarifa-Fardioua interconnection, about 27 kilometres from Tarifa and about 5 kilometres from Fardioua, in Moroccan territorial waters. The use of a remotely operated underwater vehicle helped to locate cable 7 and its fibre optic, both sectioned, at a depth of 87 metres and cable 6 with major damage at a depth of 98 metres. The state and damage found on the cables in the inspections performed are compatible with damage that can be caused by the anchor of a large ship, which together with the detection of a ship at the point of the incident at the time of disconnection of the link, leads us to safely conclude that this was the cause. The volume of oil spilled into the sea is estimated at around 33,400 litres. Direct environmental actions in the area of the incident have been coordinated by the ONEE (Moroccan electricity transmission agent), as the leakage point is in Moroccan territorial waters and thus Moroccan legislation applies.

❖ Birdlife collisions

As for bird collisions in 2016, 54 collisions of focal species (according to Red Eléctrica's specifications) were detected, of which 24 corresponded to threatened species (according to the Spanish catalogue of threatened species):

Species affected	Nº of birds affected
Great Bustard *(Otis tarda)* (1)	1
Little Bustard (*Tetrax tetrax*) (2) (3)	1
Red Kite (*Milvus milvus*) (4)	2
Black-bellied Sandgrouse (*Pterocles orientalis*) (3)	8
Black Stork (*Ciconia nigra*) (3)	1
Canarian Egyptian Vulture (*Neophron percnopterus majorensis*) (4)	4(5)
Houbara Bustard (*Chlamydotis undulata*) (1) (4)	7
Total	**24**

(1) Vulnerable species according to IUCN Red List.
(2) Near threatened species according to IUCN Red List.
(3) Vulnerable species according to the National Catalogue of Endangered Species.
(4) Near extinction species according to the National Catalogue of Endangered Species.
(5) One of the vultures only had minor injuries.

NOTE: Collisions are detected primarily during surveillance plans or specific studies. In 2016, a specific study was carried out in the Canary Islands (Study for the quantification of the impact of the electricity lines of the eastern islands of the Canary Islands on bird mortality). In collaboration with the Museum of Natural Sciences (CSIC) and GREFA.

9 LEGAL COMPLIANCE ASSESSMENT

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.

The annual legal compliance assessment performed indicates that Red Eléctrica complies with the applicable environmental requirements established by current legislation.

Those practices considered inadequate that result in cases/claims that are given leave to proceed, are resolved in all cases with administrative sanctions of low monetary value.

The following table details the type of infringement committed and the total cost of the same (as a result of the claims/cases resolved with a sanction) in the period 2010-2016.

*The data is reviewed annually to include the resolved cases/claims that were initiated in previous years. The data affected by the cases/claims solved in 2016 appears in **red** in the table.*

	2010		2011		2012		2013		2014		2015		2016	
Type of infringement	**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 [(1)]	2	200	7	2,314	4	1,082	6	6,522	1	100	2	811	1	450.76
Unauthorised felling and pruning	2	1,067	3	22,477	1	300	4	1,597	2	2,175	1	100	2	7,060
Felling, pruning and clearing without preventive measures	1	722												
Fire due to line discharge	3	13,923	1	3,848	1	3,948								
Waterway obstruction/works in areas without authorisation	1	300	2	3,100			1	1,200	2	3,600				
Activities that could contaminate soils	5	1,050												
Accumulation of biomass waste							1	100						
Fauna in captivity without authorisation							1	100						
Works in protected areas without authorisation	2	12,020												
Unauthorised works					2	62,153	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		
Incorrect waste management											1*	2,500		
Total nº claims-cases / €	16	29,283	13	31,739	8	67,483	14	11,519	6	6,876	**7**	**36,462**	**3**	**7,510.76**

(*) Data updated in 2016 following the resolution of two pending cases opened in 2015.

10 ENVIRONMENTAL EXPENDITURE

During 2016, environmental investments totalling **2,983,757.15** euros were made in new facilities, equating to **0.75%** of the total investments carried out in the transmission grid. 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 2016 expenditure totalling **19,665,124.98 euros** was made in the improvement and protection of the environment, r**epresenting 2.10%** of the total operating costs.

The evolution of environmental expenditure over the last three years can be seen in the table on the following page:

	2014 (€)	2015 (€)	2016 (€)
INVESTMENT (€)	**2,651,608.67**	**3,856,802.15**	**2,983,757.15**
Engineering and construction of facilities (1)	2,651,608.67	3,856,802.15	2,983,757.15
EXPENDITURE (€)	**19,795,258.595**	**18,848,972.08**	**19,665,124.98**
Development of methodology and systems (2)	50,082.22	47,145.00	116,853.62
Environmental studies and analyses	125,501.85	201,743.17	108,434.50
Environmental actions in facilities in service	17,502,651.92	16,722,722.18	17,679,436.20
Prevention of contamination (3)	1,376,551.64	1,268,564.57	1,395,593.67
Protection of biodiversity, landscape (4)	14,914,991.42	14,593,764.69	14,820,438.97
Climate change (5)	771,487.27	635,143.40	974,994.08
Energy efficiency and saving of resources (6)	277,152.50	226,418.04	-
Waste reduction and management	439,621.59	225,249.52	488,409.48
Research and development	363,315.53	339,553.68	440,738.91
Training and communication	256,722.21	176,594.99	48,861.84
Environmental training and awareness programmes	54,310.00	41,066.55	15,125.02
Communication (7)	202,412.21	135,528.44	33,736.82
Environmental taxes and levies	280,222.87	92,906.06	51,359.91
Cost of personnel dedicated to activities of an environmental nature	1,216,762.00	1,268,307.00	1,219,440.00
	22,446,868	**22,705,774**	**22,648,882**

(1) 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.
(2) Certifications, audits, environmental consultancy.
(3) Adaptation of facilities, repair of equipment, analysis, etc.
(4) 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.
(5) The 'Red Eléctrica Forest', improvement of SF6 management.
(6) Installation of meters, energy audits, activities for the improvement of energy efficiency.
(7) Affiliations, congresses, brochures and reports, stands at fairs, publicity in magazines, collaboration and sponsorships agreements.

(*) The climate change and energy efficiency costs are bundled within the climate change section.

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		2014	2015	2016
% of investment on the environment	**Environmental investment / total investment in the transmission grid**	0.53	0.93	**0.74**
% of expenditure on the environment	**Environmental expenditure / total operating costs**	2.16	2.00	**2.10**

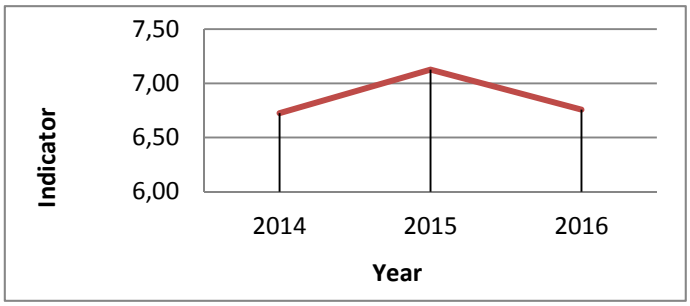
11 INDICATORS

By way of introduction, the following is a numerical representation of the information that is deemed most relevant, and which is detailed throughout this Report.

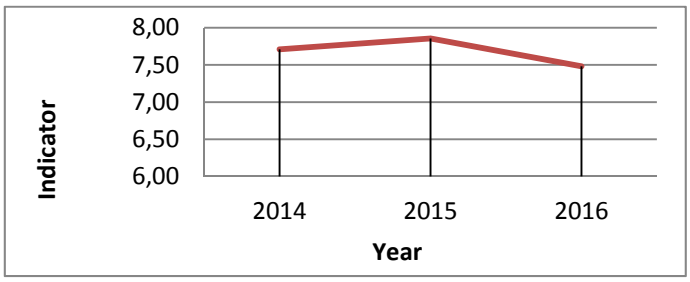
Key Performance Indicators

Electricity consumption at Head Office			
A	MWh consumed		
B	Nº employees at Head Office (*)		
Indicator	A/B		
Year	**2014**	**2015**	**2016**
A	8,399	8,558	8,284
B	1,249	1,201	1,226
Indicator	**6.72**	**7.13**	**6.76**

(*) La Moraleja and Albatros buildings. Includes interns, temporary employment agency workers and collaborators as they are susceptible to consuming electricity.

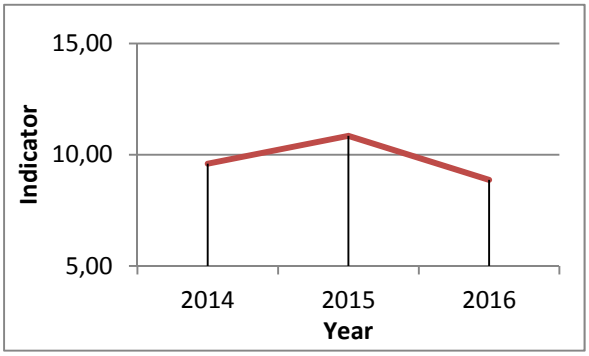


REE Electricity consumption (*)			
A	MWh consumed		
B	Nº employees Red Eléctrica		
Indicator	A/B		
Year	**2014**	**2015**	**2016**
A	16,180.97	15,900.04	15,516.26
B	2,099	2,024	2,074
Indicator	**7.71**	**7.86**	**7.48**



(*) Includes work centres with special characteristics that house the electricity control centres that operate 24 hours 365 days a year and have special energy consumption. Also included are work centres where mainly maintenance personnel are located. In the period for 2012-2013, only the head offices of the regional areas (7 centres) are included. In 2014, the consumption of 38 additional work centres was incorporated. In 2015, data on 14 new buildings has been included. In 2016, two new work centres are incorporated.

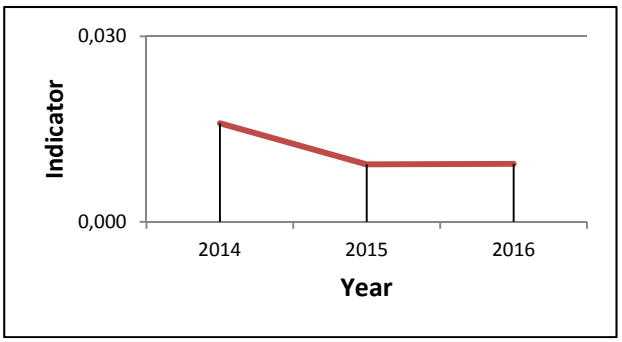
Average vehicle consumption (l/100 km)			
A	Total fuel		
B	Total Km travelled		
Indicator	A/B *100		
Year	**2014**	**2015**	**2016**
A	408,277	400,139	390,809
B	4,252,885	3,688,979	4,405,967
Indicator	**9.60**	**10.85**	**8.87**



Note: The figures for 2014, 2015 and 2016 do not include management vehicles as they are shared leasing vehicles.

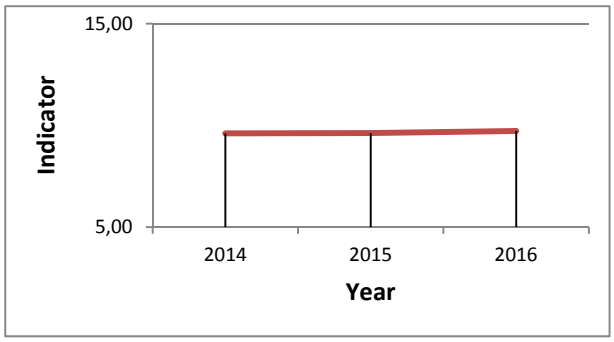
Paper consumption			
A	Tonnes (t) consumed		
B	Total Nº of employees (*)		
Indicator	A/B		
Year	**2014**	**2015**	**2016**
A	33,443	18,838	19,437
B	2,099	2,024	2,074
Indicator	**0.016**	**0.009**	**0.009**

(*) Includes interns, temporary employment agency workers and collaborators as they are considered paper consumers

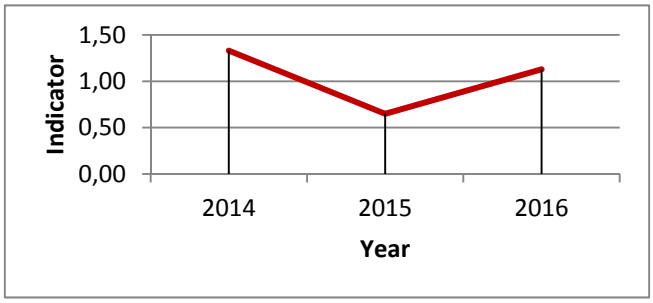


Water consumption at Head Office			
A	m^3 consumed		
B	Nº of employees at Head Office (*)		
Indicator	A/B		
Year	**2014**	**2015**	**2016**
A	9,177	9,018	9,166
B	956	938	943
Indicator	**9.60**	**9.61**	**9.72**

(*) The 'La Moraleja' buildings including interns, temporary employment agency workers and collaborators as they are considered water consumers. The 'Albatros' building is not included.

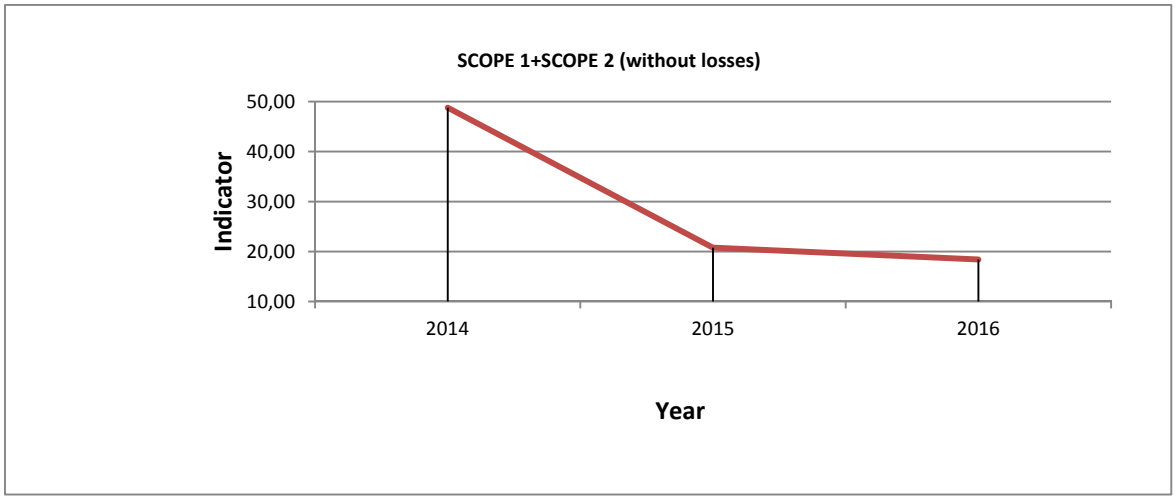


Hazardous waste			
A	Tonnes (t) of hazardous waste generated		
B	Revenue (millions of euros)		
Indicator	A/B		
Year	**2014**	**2015**	**2016**
A	2,375.019	1,183.925	2,035.645
B	1,783.9	1,823.7	1,803.8
Indicator	**1.33**	**0.65**	**1.13**



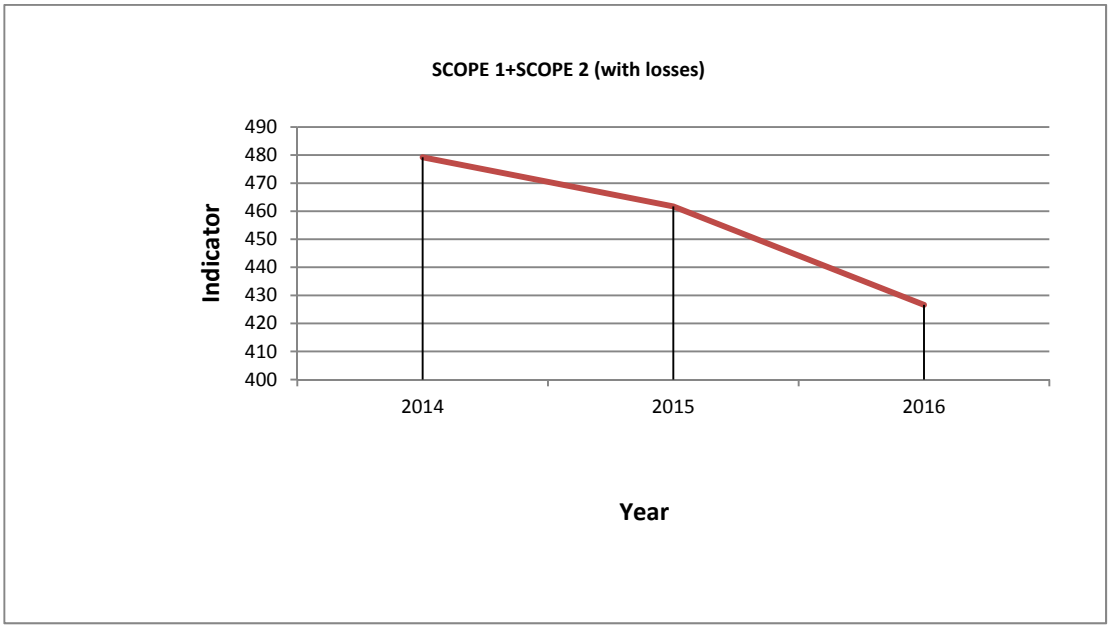
Direct emissions of greenhouse gases (SCOPE1) + Emissions from electricity consumption (SCOPE 2 without losses)			
A	t CO2-eq (SCOPE 1+ Emissions from electricity consumption)		
B	Revenue (millions of euros)		
Indicator	A/B		
Year	**2014**	**2015**	**2016**
A	86,992	37,891	33,164
B	1,783.9	1,823.7	1,803.8
Indicator	**48.76**	**20.78**	**18.39**

Note 1: Values were submitted to independent review in accordance with ISAE 3410.
Note 2: Data for 2014 and 2015 only includes emissions coming from fleet vehicles owned by Red Eléctrica. Data for 2016 includes emissions coming from owned vehicles and in shared leasing (including executive vehicles).



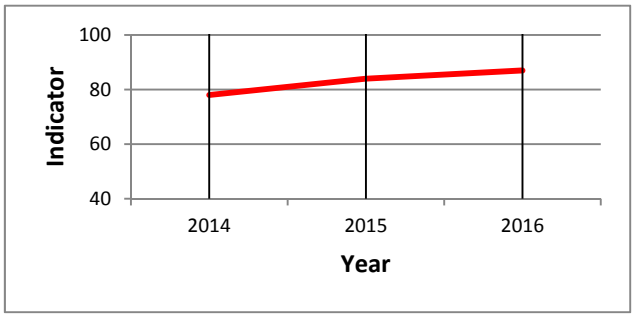
Emissions SCOPE 1+SCOPE 2 including transmission grid losses			
A	T CO2-eq (**SCOPE 1+SCOPE 2**)		
B	Revenue (millions of euros)		
Indicator	A/B		
Year	**2014**	**2015**	**2016**
A	854,899	842,009	769,538
B	1,783.9	1,823.7	1,803.8
Indicator	**479**	**462**	**427**

Note: 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.

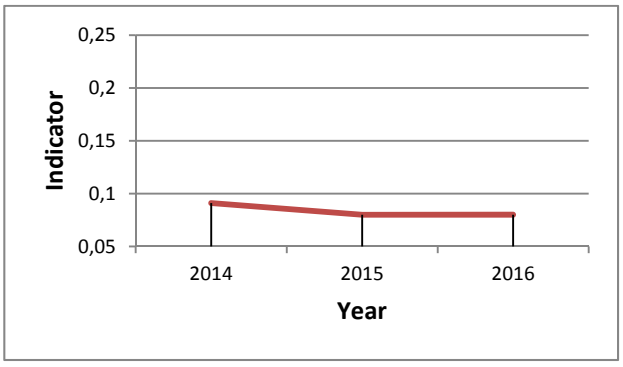


Environmental performance indicators regarding the activity

% Fulfilment of the Environmental Programme			
A	Contribution of fulfilled environmental objectives		
B	Total contribution of the programme		
Indicator	A/B x100		
Year	**2014**	**2015**	**2016**
A	**78**	**84**	**87**
B	**100**	**100**	**100**
Indicator	**78**	**84**	**87**



Biodiversity: Occupation of land (1)			
A	Surface area in Red Natura occupied by facilities (m^2) (1)		
B	Total surface area of Red Natura (m^2)		
Indicator	A/B x 100		
	Facilities		
Year	**2014**	**2015**	**2016**
A	179.025*10^6	179.588*10^6	180.943*10^6
B	195.851*10^6	223.011*10^6	223.354*10^6
Indicator	**0.091**	**0.080(*)**	**0.081**



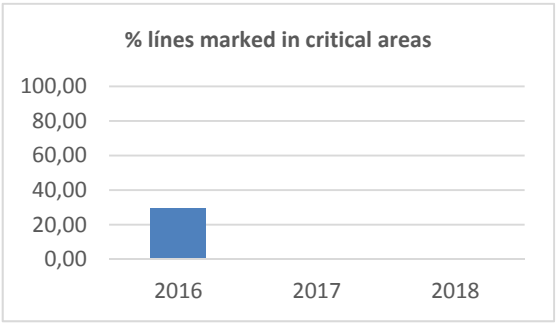
Red Natura (Natura 2000 Network) includes: SCI (Site of Community Importance) and SPA (Specially Protected Areas for birds).

(1) Surface area occupied by lines and substations: The surface area of lines has been calculated assuming an occupation of 20 m 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.

***Note 1**. For the calculation of the 2014 ratios, the database of Red Natura 2000 published in July 2014 was used. For the calculation of the 2015 ratios, the database published in February 2016 was used and for the calculation of the 2016 ratios, the ratio published by MAGRAMA in January 2017. The mapped area of Red Natura on the islands is significantly higher than in previous years, which explains the variation in the indicators identified.*

***Note 2**. The mapping of in-service facilities is improved and updated annually, whereby some variations in calculations not related to the increase or decrease in the number of facilities may result. Includes data on submarine cables since 2014.*

Biodiversity: Protection of birdlife (*)			
A	km of line marked in critical areas		
B	km of line in critical areas		
Indicator	A/B x 100 (% of line in critical area marked)		
Year	**2016**	**2017**	**2018**
A	217.7		
B	738.5		
Indicator	**29.48**		



(*) Modification of the indicator:

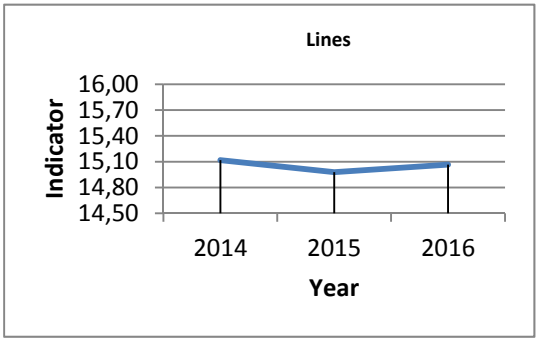
Until 2015, the following indicator was used: km of line in SPAs marked with bird-saving devices / total km line in SPAs.

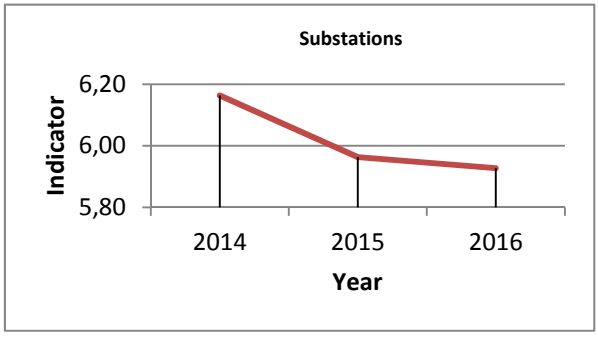
The objective of this indicator was not to reach the marking of 100% of the lines that cross through SPAs because not all the species of birds present in these SPAs are prone to colliding with the cables and therefore the data that was included previously was not actually be representative. SPAs and risk areas for birdlife do not always coincide. There are SPAs that protect species not prone to collision and there are areas not classified as SPAs in which there are sensitive species and these are not classified as SPAs.

Therefore, for the calculation of this new indicator from 2016 onwards, the critical areas in which there are species at risk of collision are taken into account, whether it be a SPA or not (data resulting from the project 'Identification, characterisation and mapping of flight paths of birds that interact with high-voltage electricity transmission lines'.

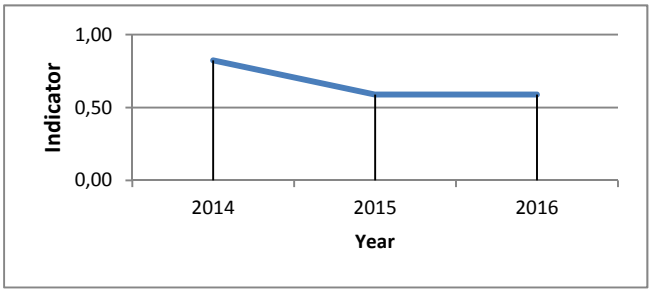
Biodiversity: Impact of facilities						
A	Km of line in Red Natura (*)			Nº of substations in Red Natura		
B	Total km of line (*)			Total Nº of substations		
Indicator	A/B x 100			A/B x 100		
	Lines			**Substations**		
Year	**2014**	**2015(*)**	**2016(*)**	**2014**	**2015**	**2016**
A	4,584.97	4,567.18	4,704.40	40	39	39
B	30,328.13	30,491.60	31,226.07	649	654	658
Indicator	**15.12**	**15.00**	**15.10**	**6.16**	**5.96**	**5.93**

(*) Includes the total km of submarine cable and those in Red Natura





Biodiversity/Relationship with stakeholders			
A	Nº of Autonomous Communities with biodiversity projects		
B	Total Nº of Autonomous Communities		
Indicator	A/B		
Year	**2014**	**2015**	**2016**
A	14	10	10
B	17	17	17
Indicator	**0.82**	**0.59**	**0.59**

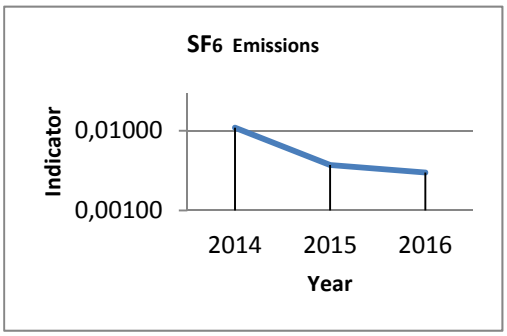


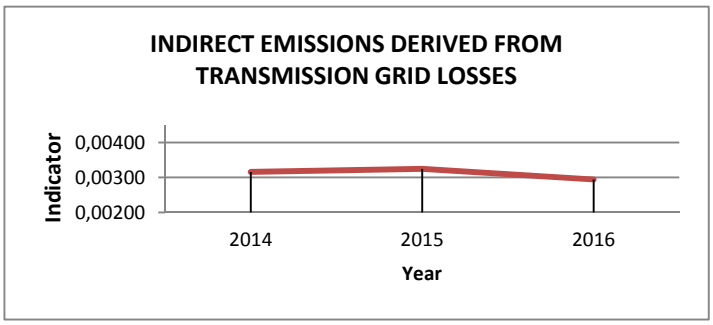
Emissions						
A	t SF_6 emitted			Indirect emissions derived from transmission grid losses (t CO_2-eq)		
B	t SF_6 installed			MWh transported		
Indicator	A/B			A/B		
	SF_6 Emissions (1)			**Emissions derived from transmission grid losses (2)**		
Year	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
A	3.55	1.39	1.26	767,907	804,118	736,374
B	324.696	373.806	421.666	243,395,000	248,025,000	250,132,000
Indicator	**0.01094**	**0.00371**	**0.00299**	**0.00315**	**0.00324**	**0.00294**

Note: The most representative emissions of REE's activity are SF_6 emissions (direct) and emissions from transmission grid losses.

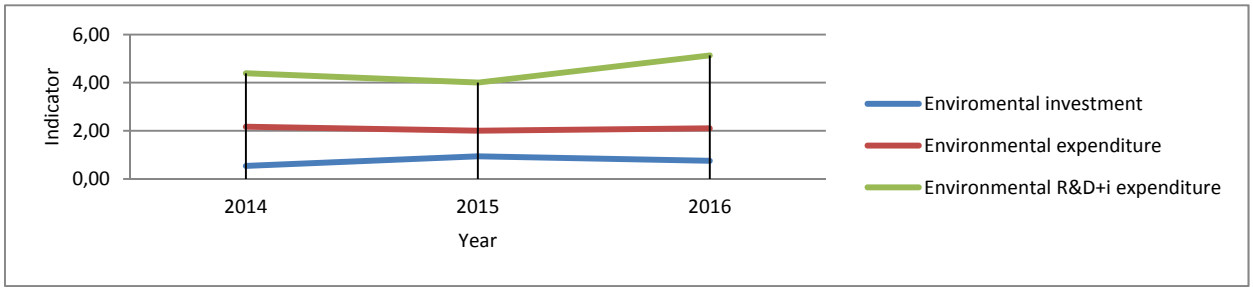
(1) To assess SF_6 gas emissions in relation to the total SF6 gas installed, it is considered more appropriate to use t of SF_6 emitted as the unit of measure, rather than calculate it in tonnes of CO2 equivalent.

(2) Losses in the electricity transmission grid are related to the location of generation points in relation to the consumption points (the greater the distance, the greater the losses), the amount of energy demanded during the year, the generation mix of the year (percentage of each generation technology in the total energy generated), international exchanges and the shape of the demand curve. Practically none of these factors are manageable by Red Eléctrica, making it very difficult to reduce losses. In this case, as in the case of emissions associated with the consumption of electrical energy, CO_2 is not emitted during the activities of Red Eléctrica, since they take place in the different points where electrical energy is generated. For the calculation of emissions associated to the losses, the emission factor calculated by Red Eléctrica is used taking as a basis the balance of the annual peninsular generation. During 2016, emissions have been reduced due to the decrease in the emission factor, mainly associated with a higher generation of hydroelectric power and a lower share of coal in the peninsular energy mix (emission factor in t CO_2-eq/MWh: 0.266 in 2015 and 0.214 in 2016).

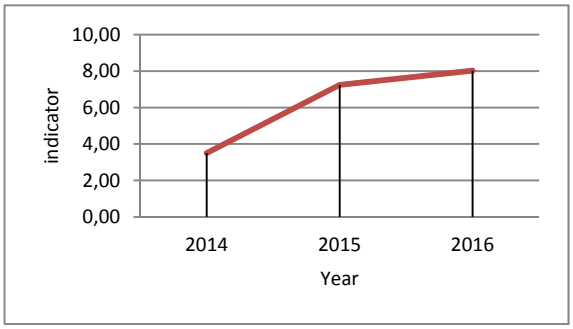




Environmental expenditure									
A	Environmental investment			Environmental expenditure			Environmental R&D+i expenditure		
B	Total investment			Total expenditure			Total expenditure on R&D+i		
Indicator	A/B x 100			A/B x 100			A/B x 100		
	Environmental investment			**Environmental expenditure**			**Environmental R&D+i expenditure**		
Year	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
A	2,651,608.67	3,856,802.15	2,983,757.15	19,795,259.00	18,848,972.08	19,665,124.98	363,315.53	339,553.68	440,738.91
B	492,628,000	410,709,000	398,511,000	914,146,000	941,915,000	936,250,000	8,283,000	8,477,826	8,582,567.37
Indicator	**0.54**	**0.94**	**0.75**	**2.17**	**2.00**	**2.10**	**4.39**	**4.01**	**5.14**



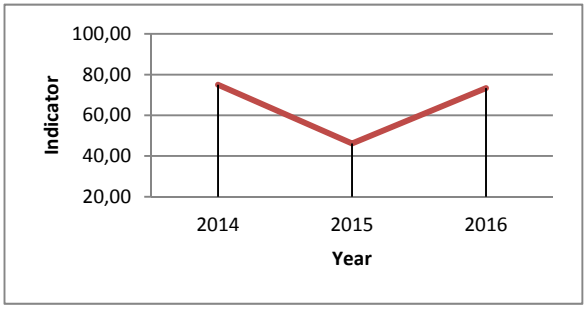
Training and awareness			
A	Nº of employees who received environmental training		
B	Nº of employees [1]		
Indicator	A/B x 100		
Year	**2014**	**2015** [2]	**2016**
A	59	123	135
B	1,682	1,697	1,682
Indicator	**3.51**	**7.25**	**8.03**



[1] *Only REE personnel.*

[2] *SF6 Course: 123 students in 2015.*

Accidental spillage of hydrocarbons			
A	Nº of accidents involving oil or fuel spillages from in-service transformers and equipment		
B	Total Nº of accidents		
Indicator	A/B x 100		
Year	**2014**	**2015**	**2016**
A	3	6	11
B	4	13	15
Indicator	**75.00**	**46.15**	**73.33**



12 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 2016.

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 2018.

GLOSSARY OF TERMS

BIRD-SAVING DEVICES OR "SPIRALS"	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. *(Own definition REE).*
ELECTRIC FIELD:	In a point in space, the force exerted on a static load located at that point. Expressed in volts per metre (V/m). *(50 Hz. Electrical and Magnetic fields REE and UNESA, 1998)*
ENVIRONMENTAL ASPECT:	An element of the activities, products or services of an organisation having or which may an impact on the environment. *(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)).*
ENVIRONMENTAL BEHAVIOUR INDICATOR:	Specific performance indicators providing information on an organisation's environmental behaviour. *(Standard UNE-EN ISO 14031 Environmental management. General Guidelines).*
ENVIRONMENTAL IMPACT:	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. *(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)).*
ENVIRONMENTAL MANAGEMENT SYSTEM:	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. *(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)).*
ENVIRONMENTAL OBJECTIVE:	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. *(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)).*
ENVIRONMETAL POLICY:	The general management and intentions of an organisation with respect to its environmental behaviour, put forward officially by its management teams, including the 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. *(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)).*
MAGNETIC FIELD:	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). *(50 Hz. Electrical and Magnetic fields. REE and UNESA, 1998).*

NESTING DETERRENT:	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. *(Own definition of REE).*
RED NATURA 2000	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. (Law 42/2007 of 13 December, on Natural Heritage and Biodiversity).
SIGNIFICANT ENVIRONMENTAL ASPECT:	. An environmental aspect that has, or which may have, a significant impact on the environment. *(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)).*
SPECIAL AREA OF CONSERVATION (SAC):	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. *(Directive 92/43/EC, of May 21, on the Conservation of Natural Habitats and Wild Fauna and Flora).*
SPECIAL PROTECTION AREA (SPA) FOR BIRDLIFE:	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.
VISUAL SIMULATION:	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. *(Own definition REE).*
WASTE:	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/obligation to dispose of. In all cases, the items listed in the European Waste Catalogue (EWC) will be classified as such. *(Law 10/1998, 2 April, on Waste).*

VALIDATION

ENVIRONMENTAL STATEMENT
VALIDATED BY

AENOR

IN ACCORDANCE WITH REGULATION (EC) Nº 1221/2009

ACCREDITATION NO. AS ENVIRONMENTAL VERIFIER
ES-V-0001

Validation Date:

Avelino BRITO MARQUINA

Director General of AENOR Internacional S.A.U.

ANNEX ENVIRONMENTAL ACTIONS 2016

Definition of Projects (Investment + Maintenance)

Environmental authorisation for **13 projects**:

Positive Environmental Impact Statement [1]
66 kV Guía de Isora-Los Olivos line
66 kV El Rosario-L/Geneto-Manuel Cruz/Dique del Este line 66 kV El Rosario-Guajara line 66 kV Rosario-L/Geneto-Tacoronte line

[1] Authorisation resulting from the Complete Environmental Impact Assessment process (Environmental Impact Study)

Environmental Resolution [2]
Third party modification 400 kV Aparecida-Trives line (88-98) Third party modification 220 kV Conso-Valparaiso line (88-98)
Modification 220 kV Cordovilla-Orcoyen line Modification 220 kV Cordovilla-Muruarte line
Increase in power capacity and RIP L+C/66 kV Santa María-Son Orlandis
Poris 220 kV Substation Poris 66 kV Substation L+C/220 kV Porís-L/Candelaria-Granadilla C/66 kV Arico II-Porís L/66 kV Tagoro-Porís L/66 kV Candelaria-Porís
RIP 132 kV Ciudadela-Mercadal line
Increase in power capacity of the 66 kV Alcudia-Pollensa line
L+C 66 kV Arinaga-Barranco de Tirajana
Increase in power capacity of the 220 kV La Pobla-Isona line (change to high temperature conductor) Increase in power capacity of the 220 kV Pont de Suert-Isona line (change to high temperature conductor)
L+C 66 kV Arinaga-Escobar
EPIA Increase in power capacity of the 220 kV Villablino-Telledo line
Increase in power capacity of the 220 kV Atarfe-Olivares line

[2] Authorisation resulting from the Simplified Environmental Impact Assessment process (Environmental Document)

	Letters sent	Responses obtained (*)
Renovation and Improvement Projects (RIPs)	32	20
Optic Fibre (OF)	5	7
Third party modification	3	3
Asset Management (AM)	68	48
Total	**108**	**78**

(*) The data relating to letters from an archaeological point of view or several responses from different organisms regarding the same facility are not included.

Responses / Authorisations received in 2016: Maintenance works	
RENOVATION AND IMPROVEMENT (RIP, REPEX, MAR)	
L/220 kV Eiris-Meson D.V.	Replacement of towers
L/220 kV Mequinenza-Monzon	Changing of insulator strings and fittings
L/400 kV Puerto de la Cruz-Tarifa 1 y 2	Installation of siliconised glass insulator strings
L/66 kV Gran Tarajal-Matas Blancas	Change of towers, insulators and stringing of fibre optic cable
L/220 kV Facinas-Puerto de la Cruz	Installation of metallic supports and clamps on OPGW
L/66 kV Candelaria-Tagoro	Replacement of towers, insulator strings and conductor cable
L/220 kV Huelves-Villares del Saz	Replacement of towers
L/220 kV Belesar-Meson D.V.	Replacement of conductor cable
L/220 kV Mequinenza-Escatron	Replacement of ground-wire clamps
L/220 kV Begues-Collblanc 2	Changing of insulator strings and fittings
L/220 kV Arroyo-Valle Montecillo Bajo	Replacement of insulators, fittings, clamps and shock absorbers
L/220 kV La Espluga-Juneda	Replacement of insulator strings and fittings
L/220 kV Castellet-Viladecans	Changing of insulator strings and fittings
L/220 kV Arroyo-Valle Venta Inés	Changing glass insulators and fittings
L/66 kV Guinchos-Valle de Aridane	Replacement of insulators and towers
L/220 kV Soto de Ribera-La Pereda	Replacement of towers
L/220 kV Huelves-Villares del Saz	Replacement of towers
L/400 kV Hueneja-Tabernas	Replacement of insulators and fittings
L/220 kV Perafort-Repsol 2	Replacement of insulators, fittings, clamps and shock absorbers
L/220 kV Mequinenza-Monzon	Replacement of insulator strings and fittings

Responses / Authorisations received in 2016: Maintenance works	
OPTICAL FIBRE (OF)	
L/400 kV Ascó-Vandellós	Stringing of optical fibre
L/400 kV La Plana-Vandellós	Stringing of optical fibre
L/400 kV Grijota-Villarino	Stringing of optical fibre
L/220 kV Almaraz ET-Casatejada	Stringing of optical fibre
L/400 kV Brazatortas-Guadame	Stringing of optical fibre
L/66 kV Salinas-Gran Tarajal	Stringing of optical fibre
L/66 kV Salinas-Gran Tarajal	Stringing of optical fibre
ASSET MANANGEMENT (AM)	
L/220 kV Candelaria-Granadilla	Asset management
L/66 kV Candelaria-Cuesta de la Villa	Asset management
L/66 kV Granadilla-Tagoro	Asset management
L/66 kV Guajara-Dique del Este	Asset management
L/220 kV Ardoz-T. de Vicálvaro	Asset management
L/400 kV Arañuelo-Morata	Asset management
L/400 kV Arañuelo-Morata 1 y 2	Asset management
L/400 kV Cerrato-San Sebastián de los Reyes	Asset management
L/400 kV Galapagar-Tordesillas	Asset management
L/400 kV Morata-Moraleja y L/400 kV Morata-Villaviciosa	Asset management
L/400 kV Mudarra-San Sebastián de los Reyes	Asset management
L/220 kV Benejama-Jijona	Asset management
L/220 kV Benejama-Novelda	Asset management
L/400 kV Catadau-Requena	Asset management
L/220 kV Adrall-Llavorsí (base of towers)	Asset management
L/220 kV Begues-Sant Boi (base of towers)	Asset management
L/220 kV Can Jardi-Codonyers (base of towers)	Asset management
L/220 kV Canyet-Codonyers (base of towers)	Asset management
L/220 kV Centelles-Sentmenat (base of towers)	Asset management
L/220 kV Foix-Mas Figueres (access 20-28)	Asset management
L/220 kV Pierola-Rubió (base of towers)	Asset management
L/220 kV Pobla-Rubió (base of towers)	Asset management

Responses / Authorisations received in 2016: Maintenance works	
L/220 kV Sant Celoni-Vic (conductors and base of towers)	Asset management
L/400 kV Ascó-Pierola (increase in distance 287-288)	Asset management
L/400 kV Ascó-Sentmenat (base of towers)	Asset management
L/400 kV Ascó-Vandellós (access 52 and 54)	Asset management
L/400 kV Begues-Garraf_(insulators)	Asset management
L/400 kV Begues-Garraf (PAT)	Asset management
L/400 kV Bescanó-Vic (access 116-118)	Asset management
L/400 kV Bescanó-Vic (insulators)	Asset management
L/400 kV Garraf-Vandellós (increase ub distance 130-131)	Asset management
L/400 kV Pierola-Sentmenat (accesos 55-56-58-85-86-87)	Asset management
L/400 kV Pierola-Vic (insulators)	Asset management
L/400 kV Pierola-Vic (base of towers)	Asset management
L/400 kV Rubí-Vandellós (access 228)	Asset management
L/400 kV Vic-Baixas (access and insulators)	Asset management
L/220 kV Guardo-La Remolina	Asset management
L/220 kV Suido-Pazos de Borbén	Asset management
L/220 kV Vallejera-Villalbilla	Asset management
L/220 kV Villalcampo-Villarino 1	Asset management
L/400 kV Cartelle-Mesón do Vento	Asset management
L/400 kV Galapagar-Lastras	Asset management
L/400 kV Lada-Pola de Gordón 1	Asset management
L/400 kV Pinilla-Peñarrubia	Asset management
L/400 kV Soto de Ribera-Robla	Asset management
L/400 kV Aragón-Morella	Asset management
L/220 kV Talavera-Villaverde	Asset management
L/400 kV Aldeadávila-Hinojosa	Asset management
THIRD-PARTY MODIFICATION	
Modification L/220 kV Penedés-Viladecans	Third-party modification
Modification L/220 kV Lubián-Puebla de Sanabria	Third-party modification
Modification L/400kV Aparecida-Trives/L/220kV Conso-Valparaíso	Third-party modification

Construction or modification of facilities

❖ Protection of vegetation and fauna

Protection of flora: Preventive and corrective measures	
Modification of the design of the project during works	
L/220 kV Siero-Puente S.Miguel 1	Modification of the typology of the access to tower 122 for a new cross-country access to avoid land movements in wooded areas.
L/400 kV Boimente-Pesoz	Construction of decanting pits and filters to avoid contamination of watercourses.
L/400 kV Boimente-Pesoz	Modification of the areas where the anchoring points are to be implemented, to reduce the impact on hardwoods.
L/220 kV Torremendo-San Miguel de Salinas	Modification of access routes to reduce the impact on flora.
L/400 kV Campanario-Ayora	Modification of access routes to towers to reduce the impact on flora (mainly due to a vineyard).
L/400 kV E/S SE of Torremendo to the L/400 kV Escombreras-Rocamora	Modification of access routes to reduce the impact on flora.
Marking off and protection of habitats and areas with protected species	
L/132 kV Ciudadela-Mercadal (REPEX)	Marking off of protected trees and bushes (Botanical inventory, prior to the beginning of the work, of the whole line to determine protected species) Definition of accesses to reduce to the minimum the impact on protected flora. No protected flora has been felled, only pruning works were conducted on Oaks affected by the work).
L/400 kV Boimente-Pesoz	Staking out of access routes and setting a boundary for the area of occupation, selection of access routes while respecting the existing tree flora. Continual monitoring of works to prevent the protected vegetation being affected. Controlling that the felling and pruning of flora is strictly limited to that authorised.
L/400 kV Boimente-Pesoz	Thorough monitoring of works to prevent the protected flora from being affected and controlling felling and pruning works to ensure that it is strictly limited to that authorised.
L/400 kV Lada-Robla	Setting boundary lines for the area of occupation, choice of accesses minimising earth movements and impacts on existing flora. Continuous supervision of works to avoid impacts on protected flora.
L/220 kV Siero-Puente S. Miguel 1	
L/400 kV Velilla-Aguayo	
L/220 KV Siero-Puente S.Miguel 1	Selection of the areas for siting of the concrete blocks (anchoring points) to avoid or minimise earth movements and impacting on the scrubland.
SE 132 kV La Oliva	Staking out and marking off of areas for the protection of the *Caralluma buchardii* cactus species in the vicinity of the substation.
L/400 kV Mezquita-Morella	Habitats of interest in the accesses to the towers have been marked off. To date these correspond to towers 7,9-11,23-25, 30, 54-56, 134-136.
L/220 kV Torremendo-San Miguel de Salinas	Staking out of access routes and setting a boundary for access to the zone and the area of occupation of the tower bases. Marking off of protected flora, extend bans on excavation surpluses in priority habitat 1520* in the surroundings of T-23 and T-24.
L/400 kV E/S SE de Torremendo a la L/400 kV Escombreras-Rocamora	Marking off of of accesses, setting a boundary for access to the area and the area of occupation of the work sites.

Protection of flora: Preventive and corrective measures	
Modification L/400 kV Pinar del Rey-Puerto de la Cruz / L/400 kV Arcos de la Frontera – Puerto de la Cruz	Minimising the impact caused by the dismantling of tower 37 in HCI (Habitat of Community Interest) 5330-2 and HCI* 6220-4.
Hoisting by boom crane (*)	
L/220 kV E/S SE Gavarrot from L/220 kV Begues-Sant Boi. NORDESTE	Assembled with a boom crane to minimise the felling required for the work site, 7 towers.
L/220 kV Torremendo-San Miguel de Salinas	Hoisting with a boom crane or a small lorry-based crane for those towers located in priority habitats 1520* (tower 23 and 24)
L/400 kV E/S SE of Torremendo to the L/400 kV Escombreras-Rocamora	Hoisted with a small lorry-based crane for those towers located in priority habitat 6220* (towers 105.N, 105.1 and 105.4).
E/S Godelleta Líneas (L/400 kV Cofrentes-Eliana, L/400 kV Catadau-Requena and L/220 kV Catadau-Torrent)	All the towers of the line assembled and hoisted by crane.
L/400 kV Campanario-Ayora	All the towers of the line assembled and hoisted by crane.
Concreting works, hoisting by boom crane and hanging of line by helicopter (*)	
L/132 kV Ciudadella-Mercadal (REPEX)	Hoisting of 14 towers by helicopter. In some cases, there was no possibility of opening access routes, and in others, adapting existing accesses was more expensive and with a greater environmental impact than doing the work by helicopter.
Hanging by hand	
L/220 kV Torremendo-San Miguel de Salinas	Hung by hand for those towers located in priority habitat 6220* (towers 5-11) and in priority habitat 1520* (towers 22-26).
Líneas E/S Godelleta (L/400kV Cofrentes-Eliana, L/400 kV Catadau-Requena and L/220kV Catadau-Torrent)	In sections with a ravine the cable is hung by hand. The hanging of cables for the 220kV Cofrentes-Eliana line are pending.
L/400 kV E/S SE of Torremendo to the L/400 kV Escombreras-Rocamora	All the spans were hung by hand where the line crossed priority habitat 6220*.
Planting of trees	
Santa Llogaia Convertor station	Hydroseeding in work sites (2,200 m^2) and planting of trees (148 trees).
L/400 kV Boimente-Pesoz	Planting of a vegetation screen in the crossing of the Route of Santiago with the line in span 54-55, in order to comply with the Heritage Resolution of the Galicia Regional Council.
L/400 kV Boimente-Pesoz	In order to comply with the Procedural Order of the Department of Agro-livestock and Autonomous Resources of the Principality of Asturias, for the occupation of Public Utility Highlands (MUP), the following forest repopulations were carried out: 25.9 Ha in Grandas de Salime and 16.9 Ha in Pesoz.
L/400 kV Soto de Ribera-Penagos (Town Council of Valdaliga)	Tree and shrub planted for landscaping in recreational area next to Rio Escudo to offset the felling of trees for the safety corridor (30 trees).
Modification L/ 220kV Olite-Serna	Planting of 200 Black Poplar trees in the Valtierra municipal area.
E/S Godelleta L/400 kV Catadau-Requena	Olive trees from Tower 25 were transplanted for later use in the landscape restoration of the Godelleta substation.

Protection of flora: Preventive and corrective measures	
Other	
L/E-S 220 kV SE Plaza	Prior botanical study
A.C L/400 kV Aragón-Peñaflor	Prior botanical study
Rebajes L/ 220kV La Fortunada-T de Escalona	Prior botanical study
L/ 400kV Mudéjar-Morella	Tidying up of the unique tree 'Pine de Los Sasos' in Alcorisa

(*) Although classified as measures for the protection of flora, in general these avoid impacts on soil, riverbeds and others.

Protection of fauna: Preventive and corrective measures	
Biological stoppages	
L/132 kV Ciutadella-Mercadal (REPEX)	Work cannot be undertaken between 1 February and 31 July due to the presence of protected birdlife.
L/400 kV Boimente-Pesoz	Works on spans 137-139 halted from April to September 2016 due to the nesting of an Egyptian Vulture pair.
L/400 kV Mezquita-Morella	2 areas with biological stoppages: - Golden Eagle and Bonelli's Eagle: 1 January-30 June between towers 140-145. - Dupont's Lark 1 March-30 June between towers 66-77.
E/S Godelleta (L/400kV Cof-Eliana, L/400 kV Catadau-Requena and L/220kV Catadau-Torrent)	Biological stoppages from April to July, due to the nesting period, for the following towers: - 400 kV Cofrentes-Eliana line (span 1-2) - 400 kV Catadau-Requena line (spans 13-14 and 25-26) - 220 kV Catadau-Torrente line (span 8-9 and 20-21). All constructed lines are marked with bird-saving devices: 400kV Catadau-Requena line and the Cofrentes-Eliana line. The hanging of the 220 kV Catadau-Torrent line is pending execution.
L/400 kV Campanario-Ayora	Marking with bird-saving devices on all the line. Prohibition of felling works in the span 48-49 due to the presence of a nest in the vicinity of tower 49 (July 2016).
L/400 kV E/S SE of Torremendo to the L/400 kV Escombreras-Rocamora	Biological stoppage from 1 March to 15 July from tower 105.N to 105.5 (complete line).

❖ Socio-economic environment and the landscape

Measures for the protection of the socioeconomic environment	
Modification of the design of the project during works	
SE Torremendo 400/220 kV	Extension with respect to the original design of the rock-filled runoff area at the substation's rainwater drainage outlet to avoid erosion problems in the adjacent agricultural plot.
Hoisting by boom crane/helicopter	
L/132 kV Ciudadela-Mercadal (REPEX)	Hoisting of 14 towers by helicopter. In some cases, there was no possibility of opening access routes, and in others, adapting existing accesses was more expensive and had a greater environmental impact than doing the work by helicopter.
L/220 kV Torremendo-San Miguel de Salinas	Hoisting with a boom crane or a small lorry-based crane for those towers located in priority habitats 1520* (tower 23 and 24)
L/400 kV Campanario-Ayora	All the towers of the line were hoisted by boom crane.
E/S Godelleta (L/400kV Cof-Eliana, L/40kV Catadau-Requena and L/220kV Catadau-Torrent)	All towers of the different lines have been or will be hoisted using a boom crane.
L-400 kV E/S SE of Torremendo to the L/ Escombreras-Rocamora	Hoisted with a small lorry-based crane for those towers located in priority habitat 6220* (towers 105.N, 105.1 and 105.4).
Hanging by helicopter	
L/400 kV Boimente-Pesoz	Stringing of line using a helicopter for those sections pending action (Section 4).
Other	
L/400 kV Siero-Puente S.Miguel 1	Installation of water ducts and improvement of existing road in access to towers 124 and 125.
L/400 kV Mudéjar-Morella	Tidying up of the unique "Pine de Los Sasos" tree in Alcorisa
SE Godelleta 400kV	Periodic irrigation is conducted to control the emission of dust into the atmosphere generated by works.
E/S Godelleta (L/400kV Cofrentes-Eliana, L/40kV Catadau-Requena and L/220kV Catadau-Torrent)	Control of possible impacts on the soils and roads due to the movement of machinery especially in periods of rain.

❖ Landscape restoration

Landscape restoration	
Substations under construction	
Santa Llogaia Converter station	Hydroseeding in work sites (2,200 m^2) and the planting of trees (148 trees).
132 kV La Oliva substation	In order to comply with point M, section f of the EIA, as measures to offset the impacts on areas of barren landscape affected by the construction of the new Corralejo substation, the restoration of the adjacent areas that are degraded through the extraction of rocks or illegal dumping of rubble and debris. To do this, the rocks on the plot affected by the substation works have been removed and piled up carefully removing the rocks with lichens that will be relocated in their natural position in the areas to be restored. They have been stacked for later use.
400/220 kV Solórzano substation	Restoration of the perimeter of the substation, with the planting of trees and creeping plants in riprap. Scattering of seeds and installing woven wire mesh enclosure, including placement of pole stakes and sleeve guards.
400/220 kV Torremendo substation	Stabilising slopes by means of coconut meshing with topsoil and trinter meshing in order to prevent erosion. Replanting of the flat areas with native vegetation (Black Hawthorn, Saltwort and Thymus).
400/220kV Godelleta substation	First phase of landscape restoration of the substation, defined by erosion control measures on embankments. On the outer slope of the substation excavation soil is used (with seed bank) and coconut matting. On interior slopes due to the orientation and gradient of the slope, volumetric geogrid is incorporated. Excellent response to the measures used on the outer slope. Design and chromatic finishing of the substation with the environment as well as the planting of fruit trees in the perimeter area of the substation.
132/66 kV Torrent substation	Landscape restoration in the entrance area to the substation. Consisting of the planting of 3 Olive trees, 3 Carob trees and aromatic copses. Automatic irrigation has been installed to facilitate maintenance.
Lines under construction	
400 kV Boimente-Pesoz line	Installation of a vegetation screen in front of /masking span 54-55 to protect scenery of the north road of the Route of Santiago de Compostela in the municipality of Lorenza.
400 kV Boimente-Pesoz line	Recovery of the surroundings of the Pesoz substation. Repairing perimeter road with 25 tonnes of gravel and the replacement of the drainage pipe affected.
400 kV Boimente-Pesoz line	Making good of access paths to work sites along the entire line. Noteworthy were the actions for the work sites used for stringing of spans 147-148 and 140-141 and the works for the making good of the *Camino Real* in the local council of Lourenza.
400 kV Boimente-Pesoz line	Making good of the embankment that was created for the work stie of tower 139 by means of carrying out planting works using species of the cotoneaster genus and ivy.
400 kV Boimente-Pesoz line	In order to comply with the Procedural Order of the Department of Agro-livestock and Autonomous Resources of the Principality of Asturias, for the occupation of Public Utility Highlands (MUP), the following forest repopulations were carried out: 25.9 Ha in Grandas de Salime and 16.9 Ha in Pesoz.

Landscape restoration	
400 kV Mudéjar-Morella line	Protect the soil against erosion on surfaces that require it. Restore the soils and vegetation cover affected by the planned actions. Reduce the environmental impacts generated on the environment, especially in relation to the physiographic modifications of the environment and the impacts on flora. Restoration of edaphic impacts to allow the retention of water and the minerals necessary for the survival of the planted flora and of that which will appear naturally. Recovery of the visual/scenic quality of the affected area, so that restoration and replanting work "masks" as far as possible the surfaces where actions have been undertaken. Landscape integration: favouring the replanting of the plant communities that are characteristic of the surrounding areas of the electricity line. NOTE: The report has been presented detailing the different actions that can be carried out during the most favourable seasons (spring-autumn).
L/400 kV E/S SE of Torremendo to the L/400 kV Escombreras-Rocamora	De-compacting of the work sites of towers 105.N, 105.1 and 105.4 by means of ploughing the ground.
220 kV Torremendo-San Miguel de Salinas line	De-compacting of the work sites of towers 9, 23 and 24 by means of ploughing the ground.
Facilities undergoing maintenance works	
Sant Gregori-Bescanó work centre	Planting of 22 trees on the perimeter of the facility. Restoration of the interior of the plot, placement of anti-weed membrane (300 m^2), spreading of pine bark (300 m^2) and planting aromatic plants (80).
L/400 kV Valdecarretas-Villarino	Recovery of access path opened to tower 2 including the dismantling and subsequent restoring of up to four dry-stone walls.
L/220 kV Siero-Puente S.Miguel 1	Geomorphological restoration of the land, removal to landfill site of surplus material, sowing of seed, repair of roads, opening up of water culverts and repair of dry-stone walls.
L/400 kV Lada-Robla	Geomorphological restoration of the land, removal to landfill site of surplus material, sowing of seed, repair of roads, opening up of water culverts.
L/200 kV Villalcampo-Villarino	Recovery of access path opened to tower 3 including the dismantling and subsequent restoring of two dry-stone walls.
L/400 kV Soto de Ribera-Penagos	Landscaping of recreational space affected by felling works during the maintenance of safety corridor in the Valdaliga municipal area in Cantabria.
Modification to the 220kV Serna-Olite line	Planting of Black Poplar trees in the Valtierra municipal area to offset the felling works for the safety corridor - not initially contemplated in the project.
Making good of substation slopes	
Mudéjar 400 kV substation	Placement of a three-dimensional geogrid, substrate filler and hydroseeding.

❖ Archaeological heritage

Protection of archaeological-ethnological heritage	
L/220 kV ES SE Gavarrot	There were many dry-stone walls that marked the limits of plots or rural properties. They have undergone a topography process and later the great majority of them protected by placing geotextile and covering them with earth so as not to affect them during works.
L/132 kV Ciudadela-Mercadal	A number of BICs (Goods of Cultural Interest) close to the works have been marked off so as not to have an impact on any of them. Dry-stone walls have been found on the access roads to rural properties. Those walls that prevented access of the necessary machinery, were dismantled and were restored once the work was completed.
L/400 kV Mezquita-Morella	Two trenches of the civil war were identified, marked off and protected so as not to affect them, placing geotextile, providing clean material and placing iron sheet plates over them during works.
L/400 kV Campanario-Ayora	Discovery of a house of the Iberian period in the vicinity of tower 7. Before the start of excavation works, surveys were carried out on tower 7 and 8 with no negative results. The perimeter of the archaeological remains was also marked for its later excavation once the works of the line are completed.

❖ Restoration of affected zones

Restoration of areas affected by works	
Restoration of areas affected by works	
L/400 kV Siero-Puente San Miguel 1	Geomorphological restoration of the land, reuse of surplus material, sowing of seed, repair of roads, opening up of water culverts and repair of dry-stone walls.
L/400 kV Lada-Robla	Geomorphological restoration of the land, reuse of surplus material, sowing of seed, repair of roads, opening up of water culverts.
L/400 kV Boimente-Pesoz	Geomorphological restoration of the land, removal to landfill site of surplus material, sowing of seed, repair of roads, opening up of water culverts and repair of dry-stone walls.
L/132 kV Puerto del Rosario-La Oliva	Geomorphological restoration of the land, reuse of surplus material in environmental restorations, repair of roads, and opening of water culverts.
L/132 kV Puerto del Rosario-La Oliva	Construction in a barren landscape area: Works are being carried out manually between towers 77 and 83 facility in order to avoid the deterioration the opening of access roads would cause. No access paths or roads are being opened.
L/400 kV Mudéjar-Morella	The restoration of affected areas (work sites and accesses), taking advantage of the appropriate time of the year to carry out the works (autumn). Planting of Juniper trees, providing channelling for runoff water and hydroseeding.
Mudéjar 400 kV substation	Restoration of embankments, placing three-dimensional geogrid, substrate and hydroseeding with species native to the area.
Solórzano substation	Restoration of the perimeter of the substation, with the planting of trees and creeping plants in riprap. Scattering of seeds and installing woven

Restoration of areas affected by works	
	wire mesh enclosure, including placement of pole stakes and sleeve guards.
L/400 kV E-S Solórzano	Asphalting of potholes in an area of 300 m^2.
L/220 kV Torremendo-San Miguel de Salinas	A report on the restoration of affected areas has been drafted (work sites and accesses), which will be carried out in the near future.
L/400 kV E/S SE of Torremendo to the L/400 kV Escombreras-Rocamora	A report on the restoration of affected areas has been drafted (work sites and accesses), which will be carried out in the near future.
SE Godelleta 400 kV	First phase of landscape restoration of the substation, defined by erosion control measures on embankments. On the outer slope of the substation excavation soil is used (with seed bank) and coconut matting. On interior slopes due to the orientation and gradient of the slope, volumetric geogrid is incorporated.
SE Torremendo	Following the indications in the EIS, in October 2015 the project for the restoration of the plot in which the Torremendo substation was located was presented to the Regional Ministry of Agriculture, Environment, Climate Change and Rural Development of the Valencian Community.
AC L/ 220kV Almodóvar del Río-Villanueva del Rey	Recovery of soil morphology in the areas surrounding the towers where works took place.
Modificación L/ 400 kV Pinar del Rey – Puerto de la Cruz / L/ 400kV Arcos de la Frontera – Puerto de la Cruz	Recovery of soil morphology in the areas surrounding the towers where works took place.
Increase in capacity of the 220 kV Aljarafe Don Rodrigo line	Restoration of the pavement in the vicinity of towers 40 and 54 and the restoration of wire fences in the vicinity of towers 35, 48 and 74.
Increase in capacity of the 220 kV Quintos Don Rodrigo line	Repair of enclosure in a private property in the vicinity of tower 88.

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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 2016",* originally issued in Spanish. In the event of discrepancy, the Spanish-language version shall prevail.