RED ELÉCTRICA
DE ESPAÑA

EMAS ENVIRONMENTAL STATEMENT 2015

April 2016

Ref.: DIS/MA/16-048

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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 continuity and security of the electricity supply 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 (peninsular and non-peninsular), our main function is to ensure the continuity and security of the electricity supply and the proper coordination of the power generation and transmission systems, working in cooperation with operators and agents in the Iberian electricity market under the principles of transparency, objectivity and independence.

As **transmission agent**, we ensure the development and enlargement of facilities, perform maintenance on them and improve them under homogenous and coherent criteria and manage the transmission of electricity between external systems which is performed using the grids of the Spanish electricity system. We also provide sufficient information to the operator of any other grid system, with which REE is interconnected, to ensure its safe operation and guarantee 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; 42,986 kilometres of high voltage transmission line circuit and 5,428 substation bays with a transformer capacity of 85,544 MVA.

Evolution of the facilities		2013	2014	2015
Lines (km of circuit)	**Kilometres of circuit**	**41,978**	**42,601**	**42,986**
	400 kV	20,639	21,094	21,179
	220 kV and less	21,338	19,192	19,387
Substations	**Number of bays**	**5,197**	**5,292**	**5,428**
	400 kV	1,374	1,394	1,441
	220 kV and less	3,823	3,898	3,987
	Transformer capacity (MVA)	**81,289**	**83,939**	**84,544**

(*) Data for the last three years revised and updated in 2015

[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 2015 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)

Noteworthy among the awards and recognitions received by Red Eléctrica for their environmental management in 2015 are the following:

- Inclusion in the **Dow Jones Sustainability World** and **Dow Jones Sustainability Europe** indices with a score of 88 out of 100.

- **EMAS Commemorative Silver Certificate**: to mark the 20th anniversary of the establishment of EMAS, in 2015 the European Commission awarded Red Eléctrica the Commemorative Silver Certificate for having been registered in EMAS for over 10 years and for complying with the requirements of the EMAS registry.

- **Good Practice Competition (EFQM)**: The *'Mapping of bird flight paths*' project has been recognised as a highly distinguished project in the good practices competition of the EFQM (European Foundation for Quality Management).

- Red Eléctrica received the 'Gold Class' distinction of the '**Sustainability Yearbook 2016**' in the evaluation performed by RobecoSAM (Sustainable Asset Management).

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, 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 cases 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:

  - o Normal and abnormal conditions: Magnitude, nature/sensitivity and prevention.
  - o 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 the commitment, as part of the Environmental Policy of the Group, to ensure 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 authorizations 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 indicated.

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 2015

During 2015 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
EA010	Environmental specifications for line maintenance works	2	09.03.15	13-03-15	Edition 1
IA004	Environmental monitoring of in-service substations	3	02.10.14	13.03.15	Edition 2
EA004	Environmental specifications for work related to the construction, maintenance, renovation and improvement of substations. Construction and alteration of buildings.	3	02.10.14	13.03.15	Edition 2
IC001	Corporate monitoring of suppliers	3	04.05.15	14.05.15	Edition 2
TQ002	Management of anomalies, corrective and preventive actions	3	09.12.14	14.01.15	Edition 2
TT002	Engineering of facilities	5	02.12.14	13.03.15	Edition 4
IT347(*)	Study of the route of a high-voltage electricity line	2	21.12.15	29.01.16	Edition 1
IT349(*)	Carrying out the distribution of towers of a high-voltage electricity line	2	21.12.15	29.01.16	Edition 1

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

3. SCOPE OF THE EMAS REGISTRATION

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*
- *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).
- ✓ **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
- ✓ **CECORE**: C/ ISAAC NEWTON, 13 EDF REE. 28760 - TRES CANTOS (MADRID)
- ✓ **Southern Regional Offices:** C/INCA GARCILASO, 1 EDF REE. 41092 - ISLA DE LA CARTUJA (SEVILLA)
- ✓ **Eastern Regional Transmission Centre:** Avenida de Aragón, 30 PLANTA 14. 46021 - VALENCIA
- ✓ **North-western Regional Transmission Centre:** Carretera N-601, MADRID-VALLADOLID-LEÓN, KM 218. 47630 - LA MUDARRA (VALLADOLID)
- ✓ **Ebro 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 facilities, or line sections, of the following infrastructure are excluded from the scope of the EMAS registration specifically in those areas where they are located, or they cross through the municipalities indicated below:

Facility	Municipality
Aldeádavila-Duero 400 kV line (cross-border/International line)	Aldeadávila de la Ribera (Salamanca)
Lada-Robla 400 kV line	Lena (Asturias)
Sabinánigo-Sangües 220 kV line	Puente La Reina (Huesca)
Grijota-Villarino 220 kV line	Villarino de los Aires (Salamanca)
Soto-Penagos 400 kV line	Cangas de Onís (Asturias)
Maials-Mequinenza 400 kV line	Serós (Lérida)
Rubí-Vandellós 400 kV line	Pontils (Tarragona)
Morata-SS.Reyes 400 kV line	Mejorada del Campo (Madrid)
Piérola-Vandellós 400 kV line	Pontils (Tarragona)
Trives-Aparecida 400 kV line	Manzaneda (Orense)

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.

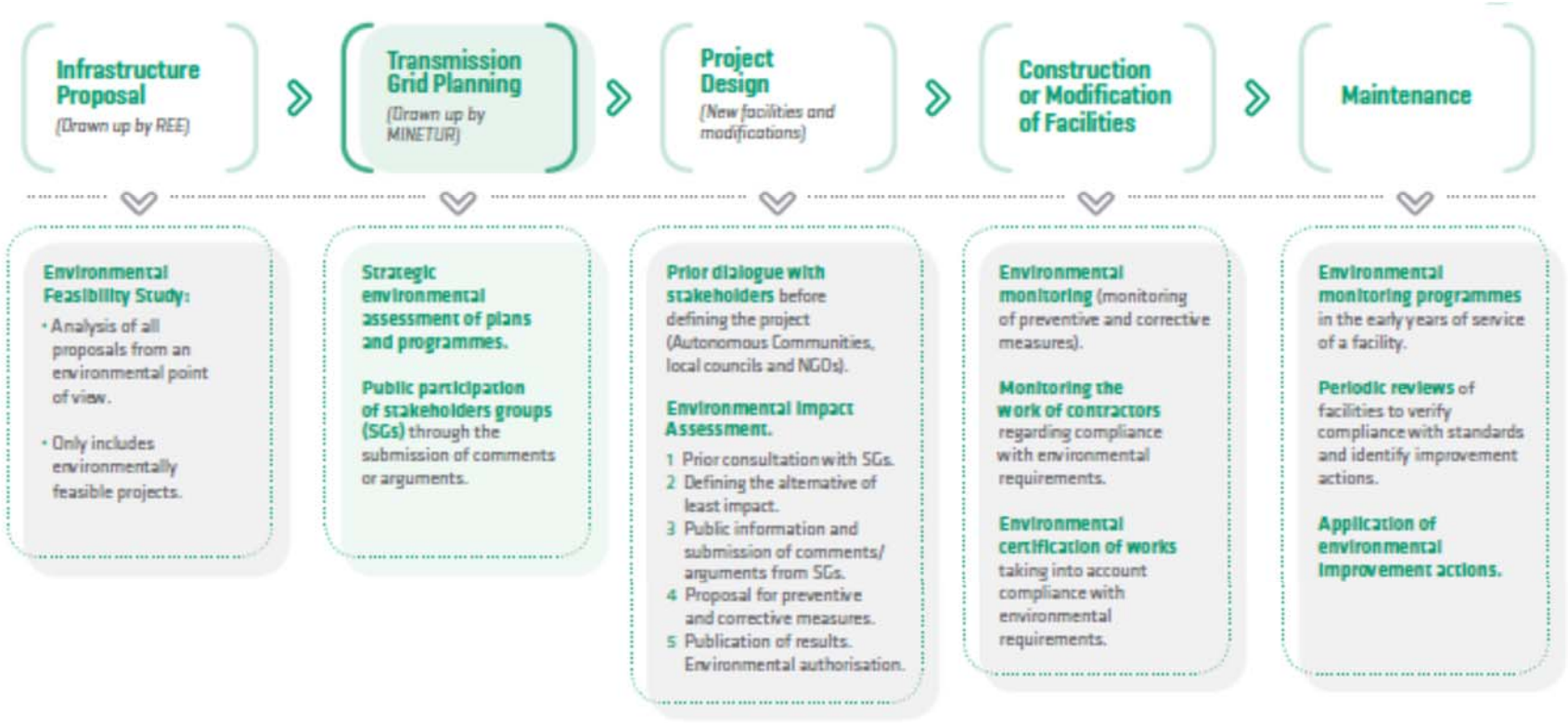
In addition, defining and establishing the appropriate preventive and corrective measures before undertaking the various tasks (whether it be the construction of new facilities or the modification of existing ones) is essential to minimise, to the highest degree possible, the potential impacts that the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



Taking the diagram of activities previously shown as a reference, the following are relevant events that occurred during 2015:

1 - TRANSMISSION GRID PLANNING

Noteworthy in 2015, was that the Council of Ministers on 16 October 2015 approved the Energy Planning: Electricity Transmission Grid Development Plan for 2015 to 2020. Said planning has been subject to an environmental assessment procedure, with the Environmental Statement Report having been favourably concluded on 22 June 2015. In addition, work has continued on the calculation of indicators to assess the environmental impacts (positive and negative) derived from the execution of the infrastructure 2008-2016 planning in which Red Eléctrica is actively involved.

2 - PROJECT DEFINITION

During 2015, environmental permitting process was initiated for **22 projects (investment projects + maintenance projects)**:

	Permitting process initiated		
	2013	2014	2015
Initial document	8	1	1
Environmental Document	6	9	16
Environmental Impact Study	7	3	5
Total initiated	**21**	**13**	**22**

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

	Completed permitting process		
	2013	2014	2015
Positive Environmental Impact Statement	22	14	5
Negative Environmental Impact Statement	0	0	1
Environmental Resolution	11	17	11
Total	**33**	**31**	**17**

Environmental authorisation was obtained for **17 projects**. There was only one case which did not receive a positive environmental impact statement, besides this there hasn´t been a halting in the processing of any of the other projects.

At year end, **51 projects are at different stages of the environmental permitting process.**

Specifically, for maintenance tasks during 2015 work was begun to carry out a comprehensive analysis of the environmental permitting requirements for the overall maintenance actions for 2016 (Renovation and Improvement Projects (RIPs), replacement of grounding cable for fibre optic cable, Asset Management (AM) and modifications to third parties).

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 a large number of replies (**75**) have been obtained in the way of authorisation and/or exemption from the environmental permitting process. In doing so, the carrying out of planned maintenance activities has been guaranteed, from an environmental point of view, prior to proceeding to their execution.

	Responses obtained (*)
Renovation and Improvement Projects (RIPs)	27
Optic Fibre (OF)	9
Modification to third parties	1
Asset Management (AM)	38
Total	**75**

(*) 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 2015*

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, especially important are the tasks that are included in the environmental monitoring programmes, to be carried out during construction, as well as the tasks prior to the commencement of works (e.g. inventories of trees felled), and the subsequent tasks related to the start of the operating phase of the facility.

The following infrastructure was brought into service in 2015: **9 substations and 176.78 km of line.** In addition, 4 substations and 112.43 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; **29 substations and 1265.67 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 (85), 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).

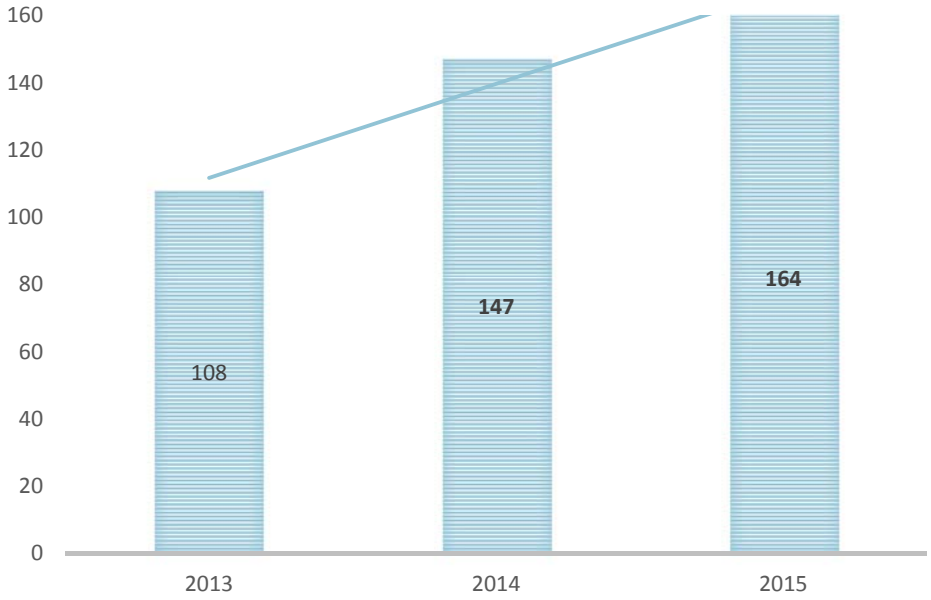
The **permanent environmental supervision**, aimed at intensifying the control and monitoring, covered 75.29% of total works performed.

Environmental monitoring (new infrastructure)				
		2013	2014	2015
SUBSTATIONS	Nº. of works supervised	40	30	29
	Permanent environmental supervision	26	23	20
	Permanent environmental supervision %	65	71.8	**68.97**
LINES	Total km of works supervised	1,302.22	698.43	1,265.67
	Km of line with permanent environmental supervision	1,045.27	643.81	963.08
	Permanent environmental supervision %	80.27	92.18	**76.09**

The most notable preventive, corrective and compensatory measures carried out in this phase during 2015 can be consulted in the Annex: *Environmental Actions 2015*.

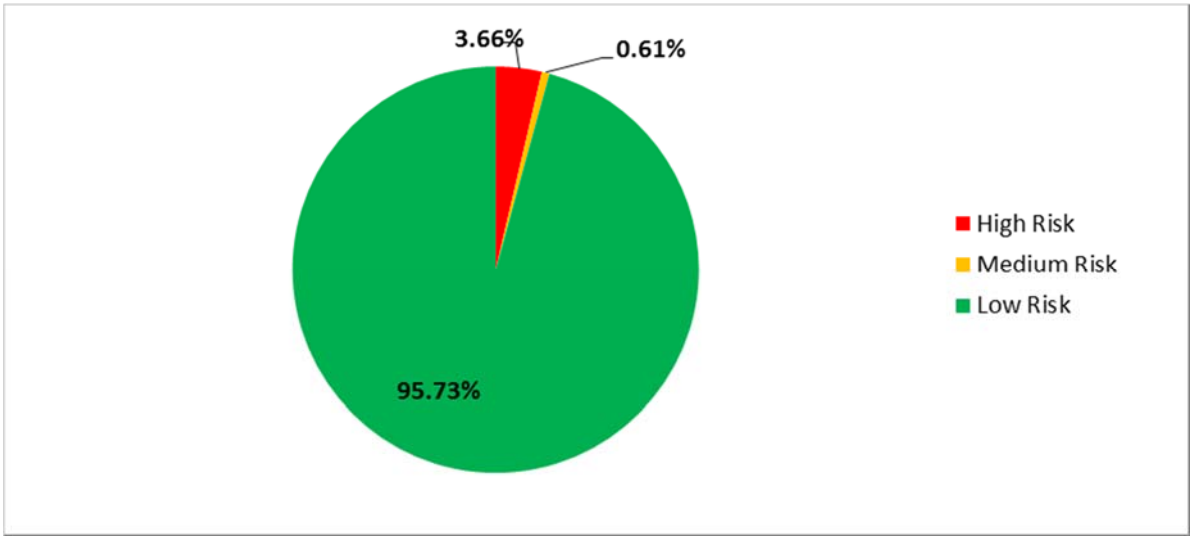
4 - FACILITIES MANAGEMENT

During 2015, a total of 164 environmental monitoring visits were performed of which 158 corresponded to substations, and of these, 44 were facilities that had not been monitored since 2008, the year in which this activity was launched.



Of the total substations in service in 2015 (652), over **87.57%** have been visited, at least once, in the last 6 years (2009-2015).

In terms of risk, only 3.66% of supervisions registered a high level of risk. This level was reached mostly due to incidents being detected mainly in substations under the supervision of the Northern Regional area (Hijar and Magallón), and one-off situations in the Northeastern Regional area, (Herrera), Central Regional area (Lastras) and in the Balearic Islands Regional area (Alcudía).



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, environmental monitoring of the work is conducted. In the case of RIPs, environmental monitoring of at least 15% of RIPs carried out in each of the demarcations were undertaken and additionally, environmental monitoring has always been carried out for the following works:

• Adaptations of power transformer containment pits.

• Emptying and dismantling of power transformers and shunt reactors.

• Accidents with environmental consequences (soil contamination ...).

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:

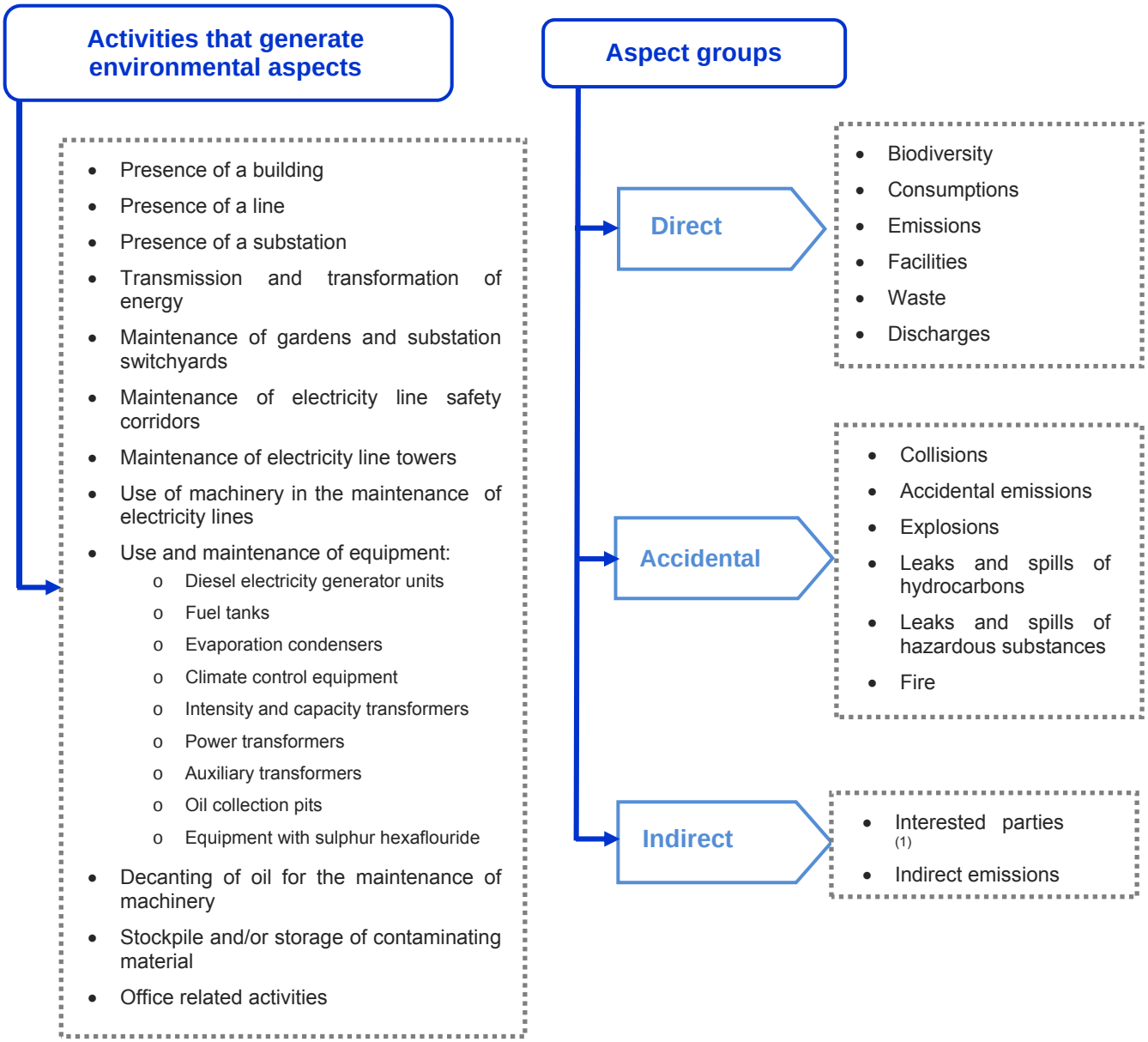
Activities that generate environmental aspects
Storage and transfer of oils and fuels
Storage and management of waste
Work sites (substations)
Land compacting
Clearing, pruning and felling
Excavation and landfill works
Concreting and cleaning of containers
Hanging/stringing of conductor and grounding 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 2015 assessment; none of them were identified as being indirect.

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				
Water consumption (Direct)	Regional Areas: South, Canarias, North, East, Northeast, Head Office at La Moraleja, Gran Canaria Electric System, Northeast 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 (Direct)	Regional Areas: South, Northwest, North, East, Northeast	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. The same buildings evaluated in 2014 were taken into account in the evaluation and the increase in consumption due to new work centres not accounted for to date has not been included the evaluation. Next year (2016) consumption will be evaluated with respect to consumption obtained this year with these new centres already accounted for.
Emissions				
Emission of gases that affect the ozone layer (R22) (Direct)	West Regional Area	Physical	Potential contamination of the atmosphere	There are out- of-service machines on which preventive maintenance is not being performed (information not available in previous years)
Indirect emissions: associated to electricity consumption (Direct)	Maintenance Stage	Physical	Potential contamination of the atmosphere	These have been evaluated for the first time with changes in the evaluation system regarding prevention. The average emission factor of energy consumed is high therefore leading to their significance.
Hazardous waste				

Aspect	Relevant evaluation	Environmental aspect susceptible to impact	Impact	Observations
Water-oil mix (Direct)	East 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 final destination is controlled disposal. Waste generation, in the majority of cases, does not follow a fixed pattern of behaviour and is largely dependent on the number of construction and maintenance activities undertaken throughout the year.
Soil contaminated with hydrocarbons (Direct)	South Regional Area North Regional Area Central Regional Area			
Accidental aspects				
Birdlife collisions (Accidental)	South Regional Area Canaries Regional Area East 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.
Leaks or spillages of hydrocarbons in small volumes of oil (Accidental)	North Regional Area Central Regional Area	Physical	Potential contamination of the atmosphere	Notable accidents are those that involved the breakage of bottle ends of the 220 kV Arkale-Irun line in the North area and that of the bottle end of the 220 kV Moraleja-T-Fortuna line.
Leaks or spillages of hydrocarbons from deposits and containment pits (Accidental)	East Regional Area	Physical	Potential contamination of ground and water	As a result of an accident it was found that the oil collection pit that contained the oil leak is not leak-proof as it was seen that water is filtering in from outside.
Leaks or spillages of hazardous substances in decanting, storage or use of machinery (Accidental)	South Regional Area East Regional Area	Physical	Potential contamination of ground and water	Notable are those accidents occurred in the Don Rodrigo y Litoral substation as a result of malpractice by the company in the maintenance of equipment.
Fires due to lines (Accidental)	Central Regional Area	Biological	Elimination of flora/vegetation	Fire occurred in the 400 kV Arañuelo-Morata line as a result of malpractice by a supplier, said fire affected land in Red Natura 2000.

6. ENVIRONMENTAL PERFORMANCE 2015

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 2015 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 2015 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 management
- Ground/Soil
- Stakeholder groups
- Research and development

6.1 Climate Change and Energy Efficiency

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.

Furthermore, in 2015 Red Eléctrica, as a member of the Spanish Green Growth Group, signed the Barcelona Declaration, which includes 10 recommendations to promote a strategy for the development of the green economy and establishes economic policies that make this possible.

CARBON DISCLOSURE PROJECT (CDP): since 2011, Red Eléctrica has annually participated in the CDP and discloses its responses to society. The Company has established as an objective, the progressive improvement of its score. In 2015, (corresponding to the 2014 fiscal year) the Company achieved a score of 100B (vs. 83B the previous year). Additionally, Red Eléctrica has been included in the Carbon Disclosure Leadership Index (CDLI) owing to its transparency in the communication of information regarding climate change

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 was launched in May 2015 covering all activities of the Company. The plan is divided into four main lines 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:

- The development of transmission infrastructure, which allows the evacuation and better use of renewable energy, provides power to the high-speed train and is essential for improving the efficiency of the electricity system as a whole.
- The operation of the electricity system, which thanks to the CECRE (Control Centre of Renewable Energies), enables the highest amount possible of renewable energy to be safely integrated into the system. In 2015, 37% of peninsular demand was covered by renewable energy.

- The work related to demand-side management and the introduction of the electric vehicle is essential to energy efficiency. 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.

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 in the last three years has been as follows:

Greenhouse gas emissions (t CO_2 equivalent) (1)	2013	2014	2015
SF_6 (2)	72,210	81,018	31,651
Fleet vehicles	1,275	1,094	989
Air conditioning	545	809	840
Power generator sets	950	204	182
Total direct emissions (SCOPE 1)	**74,980**	**83,125**	**33,662**
Emissions associated with electricity consumption (3) (4)	3,565	3,867	4,229
Emissions derived from losses in transmission (5)	732,025	767,907	804,118
Total indirect emissions (SCOPE 2)	**735,590**	**771,774**	**808,347**
Totals (SCOPE 1+2)	**810,570**	**854,899**	**842,009**

(1) The emission calculation is performed from an operational control approach. The information on the scope and methodology of inventory is available on the website of REE (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.

(2) Taking GWP to 100 years: 22,800 (Source IPCC, Intergovernmental Panel on Climate Change: 4th assessment report). The decrease in SF6 emissions is linked to the change in the methodology used for its calculation. In 2013 and 2104 the data was calculated based on the application of theoretical emission factors of the installed gas. In 2015 the calculation is based on actual data regarding leakage.

(3) The Peninsular emission factor calculated by Red Eléctrica is used; a factor which takes into account the energy mix of each year and that associates an emission factor with each generation technology.

(4) The increase in emissions associated with electricity consumption is also related to the increase in the emission factor value.

(5) 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 controllable by Red Eléctrica, making it very difficult to reduce them. However, Red Eléctrica works to identify and improve those factors it can have an influence on (see Sustainable Energy section). In this case, the same way as for emissions associated with electricity consumption, CO_2 is not emitted during Red Eléctrica activities, as it takes place at the different points of power generation. To calculate the emission factor associated to losses in transmission, the emission factor calculated by Red Eléctrica is used, which is based on the total annual peninsular electricity data. During 2015, emissions have increased, although the losses have been reduced by 6% over the previous

year. This is due to the increase in the emission factor (0.266 in 2015) associated with the decline in renewable energy generation (coverage of demand with renewable goes from 42.8% in 2014 to 36.9% in 2015) and the significant increase in coal generation (registered an increase of 24% compared to 2014).

Indirect emissions (SCOPE 3) (t CO_2 equivalent) (1)	2013	2014	2015
Emissions associated with business trips	1,046	1,485	2,517
Emissions associated with internal transport of materials	674	641	589
Work displacements (2)	1,579	3,468	3,345
Emissions associated with the value chain (3)	176,528	175,389	234,807

(1) Corresponds to trips made by train, plane, privately owned or rental vehicles. In 2015, emissions from the use of vehicles on shared leasing (including management vehicles) and from the use of taxi were included.

(2) Since 2014, the calculation is performed taking into account all of Red Eléctrica employees.

(3) 2013: data calculated on suppliers representing 87% of the volume of orders. Carbon intensity in the value chain: 331 t CO_2/ million euros.
2014: information on suppliers representing 95% of the volume of orders. Carbon intensity in the value chain: 370 t CO_2/ million euros.
2015: information on 100% of the volume of orders. Carbon intensity in the value chain: 424 t CO_2/ 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 orders made in the year and there are products/services with different carbon intensity. Therefore, one cannot establish strict comparisons between different years. Of all the activities, the construction of facilities and the manufacturing of equipment are the most carbon intensive.

- From the latest study of the value chain of Red Eléctrica, for the year 2015, it can be deduced that 37% of emissions in the value chain are associated to only one supplier, another 55% to the next top 10 suppliers, and 77% to the next 50 main suppliers.

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.

Red Eléctrica works in collaboration with the government administration and other entities in the search for solutions aimed at controlling and reducing SF_6 emissions. The main measures are associated with the implementation of best practices in equipment maintenance and management of the gas. The following actions are noteworthy:

- Improvement of the procedures for the control and identification of leaks, an inventory and management of SF_6 gas. In this regard, Red Eléctrica has developed a procedure for controlling the decanting of gas which has improved the calculation of annual leakage of SF_6, and provides results much lower than those values estimated based on previous theoretical rates of leakage. In 2015, this new methodology obtained a leakage value of 1,388 kg of SF_6, 0.37% of the total gas installed.

- Replacing old equipment for equipment with lower leakage rates.

    - The theoretical average emission rate of equipment in 2015 was 1%, so the target set for this year has been met. In the last six years this rate has been reduced by 20.6%. A new target for 2020 has been set: reach an average theoretical leakage rate of 0.8%.
    - The climate change Action Plan also includes the objective of avoiding 1,500 tonnes of CO_2 eq thanks to the replacement of old equipment by equipment with a lower leakage rate.
    - In 2015, an estimated total of 277.18 tonnes of CO_2 eq has managed to be avoided.
- Incorporation of the most efficient equipment for leak detection, and the management and measurement of SF_6.
- Training of personnel involved in the management of this gas (Red Eléctrica has two legally recognised training centres offering classroom lectures and a workshop for hands-on training).
- R&D+i projects related to the improvement in the management of this gas (Programme in collaboration with the Electric Power Research Institute 2015-2020).

Additionally, Red Eléctrica works in collaboration with the government and other entities in the search for solutions aimed at controlling and reducing these emissions. In May 2015, a new Voluntary Agreement was signed 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.

It is important to note that for the first time in 2015, the SF_6 emissions calculation was carried out based on the information gathered during operations for the refilling of equipment with gas.

	2013	2014	2015	Objective 2015	Objective 2020
SF_6 installed (kg)(1)	297,694	324,696	373,806		
SF_6 Emissions / SF_6 installed (%)(2)	**1.06**	**1.09**	**0.37**	**1.0**	**0.8**
Total emissions (kg)	**3,167**	**3,553**	**1,388**		

(1) The growth in installed gas is due to the putting into service of new facilities and the replacement of old equipment for SF_6 insulated equipment.
(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.

REDUCTION OF GREENHOUSE GAS EMISSIONS (1)	
Annual savings	*t $CO_{2\ eq}$ / year*
Reduction of SF_6 emissions due to the replacement of old equipment for equipment with a lower leakage rate (1)	277

(1) Reductions associated with measures implemented in 2015.

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 recent years has been as follows:

	2013 (kWh)	2014 (kWh)	2015 (kWh)
Head Offices (Moraleja + Albatros) (1)	8,566,662	8,399,121	8,558,868
Tres Cantos (1)	1,674,293	1,652,529	1,690,439
Non-peninsular systems (1)	689,674	1,304,592	1,319,628
Regional Head Offices	2,353,001	2,176,256	2,049,798
Regional work centres(2)	1,887,422	2,648,473	2,281,308
TOTAL (kWh)	**15,171,052**	**16,180,971**	**15,900,041**
TOTAL (Joules) (3)	**$5.46 \cdot 10^{13}$**	**$5.82 \cdot 10^{13}$**	**$5.72 \cdot 10^{13}$**

(1) These are work centres with special characteristics due to the fact that electricity control centres are located there. These work 24 hours a day 7 days a week and have special energy consumption.
(2) These are work centres staffed primarily with maintenance personnel. In the period 2012-2013, only the regional head offices (7 offices) were included. In 2014, the consumption of 38 additional work centres has been included.
(3) 1kWh = $36 \cdot 10^{5}$ 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 ISO50001 for buildings at the head offices, with a 15% consumption reduction target for these facilities in the period 2010-2020.
- **Reduction of electricity consumption associated to the Electricity Control Centres**: Reduction target of 15% of its consumption in the period 2014-2020.
- **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 2014:

- Energy Audits Plan: During 2015, no energy audits were carried out in buildings. Pending definition is the efficiency plan for buildings that was expected to be disclosed in 2015, but was put on hold in anticipation of the publication of the new Royal Decree on energy efficiency, so that the plan could be in accordance to the new legal requirements that the new regulatory document could demand. In any event, energy audits are performed on those work centres, whose refurbishment projects are significant and whose scope can affect elements that may reduce energy costs, before and after the comprehensive reforms are carried out.

    - The 'Rubí' building is being remodelled between 2015 and 2016. In the audit prior to the remodelling of the building, it had an energy rating of C. In 2016-2017, an audit will be carried out after the work is finished, to allow the energy improvements achieved in the building to be ascertained.

- 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 implemented in 2015 are detailed below:

    - **Climate control measures in buildings:**
      • Replacing pipe insulation on the roof of the East Building.
      • Replacement of aluminium carpentry on the facades of the North and South buildings.

- **Data improvement measures:**
  • Making a new inventory listing of energy consuming equipment.

- **Awareness and sensitization measures**
  • Awareness campaign and providing information to employees, to raise awareness of the environmental and social benefits of improved energy efficiency and the work that has been carried out in recent years at the head office.

- Renovated buildings: minor reforms have been made in 3 work centres in which different energy efficiency related measures have been considered 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: La Lomba, Rubí and Sentmenat.

(1) Estimated annual reductions as a result of the measures carried out in 2015 (estimates based on equipment specifications and information from energy audits).

- 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.

	2013	2014	2015
Energy rating A	---	---	---
Energy rating B	5	6	7
Energy rating C	13	12	12
Energy rating D	4	4	5
Higher energy rating	the rest	the rest	42

NOTE: At present, Red Eléctrica cannot have a building with an energy rating A as this requires the generation of a certain quantity of renewable energy and Red Eléctrica, by law, cannot generate electricity.
Red Eléctrica has a total of 66 buildings distributed nationwide and on the Balearic Islands and the Canary Islands.

- Efficiency measures in new work centres: The Monzón building was commissioned in December 2015 but has no energy rating as it is a prefabricated building. Efficiency measures have been established on the building envelope (a thermal break and special window glazing), lighting, air conditioning and the use of solar thermal energy for hot water.

6.1.3.1.2 Specific actions carried out in corporate communication systems:

o IT upgrading of workstations:

In 2015, 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. **101 TFT screens** (changed from 17" to 23") for employees and 16 display screens in the CECOEL have been replaced.

This year 61 **old desktop PCs** and **133** laptops were replaced.

o Consolidation of IT servers:

Data regarding the number of servers is:

	2014	2015
Individual physical servers	56	43
Physical servers for virtualization	38	33
Virtual servers	223	248
Total	**317**	**324**

As can be seen from the aforementioned data, in 2015 the number of servers increased by 2%, from 317 to 324.

However, the number of physical servers has been reduced by 23%, from 94 to 76 and the number of virtual servers has increased by 10% compared to 2014 going from 223 to 248. In addition, it can be seen that the ratio of consolidation of virtual servers over physical servers has gone from 6:1 (6 virtual servers to one physical) in 2014 to a higher ratio of 7:1 in 2015.

With this data it can be seen that although the total number of servers has increased, the utilisation of hardware has been improved through virtualisation and consolidation and, as a result, the environmental impact has improved (savings in CO_2 emissions).

o 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.

6.1.3.1.3 Key actions and estimated savings

REDUCTIONS IN ENERGY CONSUMPTION(1)		
	kWh	*Joules*
Reduction in the Head Office due to the implementation of the energy efficiency measures (insulation of piping and renovation of aluminium carpentry of facades)(1)	70,604	$2.54 \cdot 10^{11}$
Improvements in building insulation and lighting systems in 3 work centres (1)	35,883	1.29·1011
	kWh/annually	*Joules/annually*
Reduction due to replacement of computer screens and PCs (1)	22,822	$8.22 \cdot 10^{10}$
Replacement of computer screens and hardware in control centres (1)	54,049	$1.94 \cdot 10^{11}$

(1) Estimated annual reductions as a result of the measures carried out in 2015 (estimates based on equipment specifications and information from energy audits).

REDUCTION OF GREENHOUSE GAS EMISSIONS (1)	
Annual savings	*t $CO_{2\ eq}$/year*
Reduction in the Head Office due to the implementation of the energy efficiency measures (insulation of piping and renovation of aluminium carpentry of facades)(1)	19
Improvements in building insulation and lighting systems in 3 work centres (1)	10
Reduction due to replacement of computer screens and PCs	6
Replacement of computer screens and hardware in control centres	14

(1) Reductions associated to measures implemented in 2015.

6.1.3.2 Sustainable mobility

Red Eléctrica maintains a clear commitment to efficiency in mobility. In addition, Red Eléctrica has been working for a few years on optimising the journeys made in maintenance activities through two complementary actions. On the one hand, improving the energy rating of the vehicles used and on the other, optimising their management and use.

Proof of this is the 'Green Fleet Accreditation' in its 'Master' mode (the most demanding) received from the Association of Fleet Managers (AEGFA) and the Institute for Energy Diversification and Saving (IDAE) in 2015. This certification shows that the fleet of Red Eléctrica meets strict standards of environmental respect and sustainability, while taking into account other aspects such as fleet management, training of drivers, offsetting of emissions, optimising routes, maintenance of vehicles or corporate commitment.

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 70.7% of Company vehicles (including shared leasing) have an energy rating of A or B, noteworthy being the increase of vehicles with an energy rating of A, which has gone from 48% in 2013 to 57% in 2015. 91.5% of the vehicles used by managers have a rating of A, B or are electric.

In this regard, also noteworthy is the CARS project (*Safe Responsible and Agile Driving*), whose implementation has facilitated a reduction in fuel consumption thanks to the use of efficient routes and responsible driving. This project has received recognition from the Association of Fleet Managers (AEGFA) in the category of Efficient Fleet Management.

In addition to these and other measures already in place (such as videoconferencing, lighting [LED] identifying available parking spaces, Company shuttle bus to the head office), Red Eléctrica's Sustainable Mobility Plan was defined.

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 CO_2 eq per year is avoided as of 2020.
- ✓ Commuting of employees to and from work centres: over 200 t CO_2 eq in savings as of 2020.

Fuel consumption (litre) during 2015 associated to vehicles:

	2013	2014	2015
Diesel (l)	475,792	408,277	400,096
Gasoline (l)	27	-	44
Biodiesel	-	-	121
Autogas (LPG)			33
Total fuel vehicles (l)	475,818	408,277	400,139
Consumption of diesel generator sets [(1)] (not associated to vehicles) (l)	2,377	4,100	5,061
Fuel consumption (Joules)	$1.77 \cdot 10^{13}$	$1.52 \cdot 10^{13}$	$1.48 \cdot 10^{13}$

[(1)] 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

In this regard, in 2014 the Sustainable Mobility Plan was approved with the aim of incorporating a new culture of mobility in the Company. This plan will help 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.

The measures planned for 2015, with a budget of 1,258,874 €, has been completed in full, representing a 100% fulfilment of the target.

REDUCTIONS IN FUEL CONSUMPTION (1)		
	Litres	*Joules*
Savings in diesel due to efficiency measures in fleet vehicles, CARS project (1)	8,181	$3.02 \cdot 10^{11}$

(1) Actual Reductions achieved in 2015 compared to 2014, thanks to the efficiency measures implemented.
1 Litre of diesel = $37 \bullet 10^6$ joules

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 2015, the **third 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 5 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: 5 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:

- **PRICE Project *(REeficiente PROJECT):*** a joint project for the implementation of smart grids in the field of residential electricity demand and for which the Corredor del Henares area of the Community of Madrid was selected. Red Eléctrica has participated with 20 other partners in this project since its inception in 2011; a project funded by the Ministry of Economy and Competitiveness.

  This project finalised in 2015 and has allowed Red Eléctrica to develop a knowledge base and technology for the implementation of demand-side management mechanisms and on new mechanisms for providing information to citizens on the state of the electricity system.

- **The electric vehicle *(REeficiente PROJECT)*:** Red Eléctrica participates in various working groups and dissemination initiatives, in order to prepare the operation of the electricity system for the introduction of this type of demand. (See: *http://www.ree.es/en/red21/electric-vehicle/electric-vehicle-initiatives-and-projects)*

  The management of the demand of the electric vehicle is an opportunity for the improved functioning of the future electricity system.

  The introduction of the electric vehicle promises to evolve the mobility models of our society and will become, thanks to the possibility of charging during off-peak hours, an ally that will allow more flexibility in operating the system thanks to this demand-side management possibility.

- **ALMACENA Project: *(REeficiente PROJECT):*** The '*Almacena*' project consists of the field installation and subsequent operation of an energy storage system, specifically a prismatic lithium-ion battery with a power of about 1 MW and a capacity of at least 3 MWh, which aims to assess the capabilities and technical characteristics that this type of installation currently offers as a tool that seeks to improve the operating efficiency of electricity systems.

  This innovative electrochemical storage system was installed in Carmona, Seville, and that was brought into operation in 2014 has allowed two future functionalities to be tested during 2015. Said functionalities are aimed at promoting the integration of renewable energy and improving the system operation services (modulation of the load curve and load-power frequency control). Additionally this technology is serving as a platform to assess the potential contribution of this technology to other system operation services, the increase in the flexibility of grids or the stability of the system.

- **PERFILA Project** ***(REeficiente PROJECT):*** Geared towards the definition of patterns of behaviour of the energy needs of households and small businesses to carry out a more efficient management of both the demand and of energy resources. Led by Red Eléctrica it involves the major distribution companies.

  The information which has been collected since January 2014 from approximately 20,000 members of the panel has been used in the 2016 initial profile proposal developed by Red Eléctrica.

- **Active citizen** ***(REeficiente PROJECT):*** Red Eléctrica promotes the involvement of the consumer as a key protagonist in the new energy model.

  Red Eléctrica has created a space on its website specifically dedicated to disseminating this information to citizens and, in 2015, it drafted and released the book "Save on your electricity bill for Dummies" that responds to this commitment to disclose the functioning of the service and continues the path taken in 2014 with the publication of the book "Operation of the electricity system for Dummies"

  Under the "Active Citizen" framework, Red Eléctrica also promotes greater knowledge about demand-side management among its employees and this has led to the creation in 2015 of a community of specific collaboration open to all employees within the internal portal miRED. This collaborative environment serves as a tool for participation and management of the knowledge related to demand-side management in the residential sector.

6.1.4 Offsetting of emissions

Within the climate change action plan, we have set a goal to offset at least 20% of our direct emissions. In this sense, Red Eléctrica offsets its emissions primarily through the **'Red Eléctrica Forest'** project.

Started in 2009, and of an ongoing nature, this project is twofold: to 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.

In 2015, work for the **Puebla de Sanabria Forest** (Zamora) was concluded, which completes the offsetting of emissions corresponding to 2014. It is estimated that the species planted under this project will offset 30,638 tonnes of CO_2 throughout their life, which added to the **Majorca Forest**, completed last year, represent an offsetting of 41% of the direct emissions of 2014.

Also, the planting of pine and oak trees took place in Ejulve (Teruel) that would be equivalent to 3,000 tonnes of CO_2 being offset.

Work has also started on the restoration of 50 hectares of forest with pine and hardwoods in the municipality of Espadañedo (Zamora), which will be completed in the first half of 2016 and will help meet the objective of offsetting emissions corresponding to 2015.

Moreover, for the third consecutive year the Company has offset a part of the emissions corresponding to employee commutes to their respective work centres, having purchased a total of **2,212 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 2015 (65.7% 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.

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, in some cases it is inevitable that infrastructures cross or be located in protected areas, or areas with species of interest as many spaces are protected in Spain (approximately 25% of the surface area is protected).

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.

In 2015, 289 km of line was brought into service, of which **8.16% is located in Red Natura** (this high percentage is related to the commissioning of the Jinamar–Santa Agueda Line and the Plasencia–Almaraz Line, which were impossible to construct without crossing Red Natura spaces). Of all existing infrastructures, only 15% of total lines and 6% of substations are in protected areas (Red Natura).

Currently, Red Eléctrica's facilities occupy only 0.08% of Red Natura Española.

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 2015, **189 km of line** was marked (174 km on the Spanish Peninsula and 15 km on the islands) of which 32 km are in SPAs (Special Protection Areas for Birds – Natura2000) and work has continued on the development of specific marking plans nationwide. To do this, the project **'Identification, characterisation and mapping of flight paths of birds that interact with high voltage transmission lines'** was developed, for which the Company has received several awards since its launch in 2010.
http://www.ree.es/en/sustainability/noteworthy-projects/mapping-bird-flight-paths-project

Thanks to this project a tool has been launched based on the use of geographic information systems (GIS) that integrates data regarding bird flight paths.

In a first phase, considering the information on the species most prone to collision, and depending on the distribution pattern and spatial aggregation, sensitivity maps have been drafted for the entire national territory. By introducing other environmental and territorial factors in the model, collision risk maps are also obtained, from which it is possible to prioritise corrective actions on existing lines and establish multi-year marking plans that identify the line sections that due to the fact that they are present in high sensitivity areas with high presence of sensitive bird species shall be considered a priority for action in the transmission grid.

Furthermore, the Company has developed and implemented a specific methodology to assess the effectiveness of the measures put in place to reduce bird collisions: **methodology and protocol for the collection and analysis of data from bird collision accidents with electricity transmission lines**.

The method is applicable to both new installations (assessments in the context of environmental monitoring programmes), as in sections or specific points of existing lines. It is also valid for comparisons between different types of devices, such as the new blade-type model bird-saving device in comparison to the traditional spiral model.

In 2015, specific training was given to contractors that monitor birdlife and this has been implemented in the monitoring of 13 lines, both during construction and maintenance. The analysis of the results obtained will assess the effectiveness of the measures implemented to reduce birdlife collisions.

In addition, an analysis of the effectiveness of bird-saving devices: blade-type or rotating ball has also been carried out on different communities of birds, mainly Steppe birds and waterfowl, in order to reduce bird mortality due to collision with electricity cables. During 2014 and 2015 monitoring was carried out on 36 sections of the Olmedilla-Romica 400kV line in the province of Cuenca in which three types of markers (orange spiral, yellow spiral and blade-type) were installed at variable intervals. This is currently pending analysis by the CSIC and the results of the analysis will be available throughout 2016.

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 2015 regarding the protection of habitats and species were the following:

- Use of helicopter for the concreting works of 6 towers, the hoisting of 5 towers and the hanging of the 400 kV Boimente-Pesoz line.
- Use of a drone for the hanging of two line sections of line. This type of technology, in addition to improving the safety of people, is a major fuel savings over the use of helicopter.
- • Biological stoppages on 12 lines of varying lengths (periods between 16 and 30 weeks) to avoid impacts on different species, among which are: Egyptian vulture, Golden eagle, Bonelli's eagle, Dupont's lark, black stork, Houbara bustard, Western capercaillie and European mink.
- Transplanting of several specimens of oaks, Holm oaks, wild olive and common dogwood and carob, which were in areas affected by the works.
- Construction of a special building for Kestrels to nest safely in the municipality of Ayora, and the planting of trees.
- Collection of seeds and the planting of fragments and seeds in Ibiza and Majorca under the project 'Experimental technique for the recovery of Posidonia oceanica meadows" whose objective is to develop a technique that enables the planting of seeds or fragments of Posidonia and thus restore areas affected by submarine electricity cables: During 2015, fragments of Posidonia were collected in Ibiza and these have been grown in a sea-based system. These fragments have been planted in the sea in the Bay of Talamanca. In Majorca, fragments and seeds were also collected and cultured in aquariums with artificial light and then replanted in the sea, particularly in the Bay of Santa Ponsa.

Other actions carried out in 2015 are included in the 'Environmental Actions' annex of this environmental statement.

- **Hábitat Project** (2014-2017)

  The HÁBITAT project began in 2014 with the aim of having an in-depth knowledge of Habitats of Community Interest (HCI*) present in the sphere of influence of electricity lines and substations in service nationwide, as well as gaining knowledge about their conservation status.

  The ultimate goal is to monitor the interaction of electricity transmission lines and natural habitats of community interest, with a view to use the information for the decision-making process regarding operation and maintenance.

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

  During 2015, 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. The review and validation of the work done, from a scientific point of view, has now begun.

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 2015, the Company has 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.

In addition, projects aimed at restoring degraded habitats are relevant of note are the Red Eléctrica Forest and the Recovery of the Ses Salines dunes (Formentera).

❖ **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

- **Reintroduction of the Bonelli's eagle (Hieraaetus fasciatus) in Mallorca.** *Collaboration with the Balearic Government. Duration of the project 2011-2014*. Since the project began, the population has grown to 21 individual eagles, of which 2 were born in the wild. In 2015, one adult eagle and 6 fledglings have been released and one eagle was born in the wild, all of them have been fitted with transmitters so their movements can be tracked.

- **Nesting platforms for the Osprey (Pandion haliaetus) in Andalusia.** *Collaboration with the Migres Foundation and the regional government of Andalusia*. Since the outset of the project three nesting platforms have been installed: 2 in the province of Cádiz and 1 in the province of Huelva. These platforms have given their results with the birth of 15 Osprey chicks. In 2015, four chicks were born on the platforms of Cádiz.

- **Programme for the reintroduction of the Black Vulture (Aegypius monachus) in Catalonia.** Since the project's inception the population has grown to 48 vultures, of which 10 were born in the Boumort Game Reserve. In 2015, two adult vultures were released and three vulture chicks were born in the wild, all of them have been fitted with transmitters so their movements can be tracked.

- **Conservation of the Lesser Grey Shrike (Lanius minor) in Spain.** Since the outset of the project a total of 267 chicks have been released, of which 16 have returned as adults. In 2015 a total of 7 shrikes have returned to Lleida, 4 of them were released in 2014 after being born in captive breeding in Vallcalent (Lleida). In 2015, 100 shrikes from this breeding centre have been released, 33 of these have been fitted with geolocators (pioneering technique for this species).

- **Monitoring and analysis of the causes that favour the expansion of the Egyptian Vulture in Catalonia.** In 2015, a population census of the species was carried out in 27 territories. 21 breeding pairs present in these territories have given birth to 21 chicks, all of which were ringed; the reproductive parameters in 2015 are higher than in 2014.

- Other actions carried out in 2015 for the conservation of birdlife:

    - ***Recovery of the Golden Eagle population in Galicia.*** Since the inception of the project, the Golden Eagle has returned to the Xurés Natural Park settling in 3 territories. The impact of the project is evident in neighbouring communities with the formation of new breeding pairs such as is the case of Galician Central Massif. Since the outset of the project a total of 12 eagles have been released. In 2015, five eagles were, two eagles have been ringed, and 60 territories have been surveyed registering a total of 13 territorial breeding pairs. Collaboration with GREFA (2011-2015).

    - ***Reintroduction of the Lesser Kestrel in Valencia.*** In 2015, a total of 119 chicks have been reintroduced in the 'hacking method' in Salinas, Camporrobles and Ayora. Red Eléctrica has donated a total of 3 release cages.

    - ***Improvement of the habitat of the Soprano Pipistrelle bat (Pipistrelus pygmaeus) in Valencia.*** Collaboration with the Valencian Government through a collaboration framework agreement (2011-2016).

❖ **<u>The Red Eléctrica Forest</u>**

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

- **Majorca Forest**: Development of a training and awareness programme 'The Red Eléctrica Forest. Growing together' in which 683 students of first and second year of secondary school of the region of Llevant participated, and the celebrating of an awareness day for employees and their families to which 35 people attended.

- **Zamora Forest (Puebla de Sanabria):** Completion of the restoration of 51 hectares in the Sierra de la Culebra (Site of Community Importance), with the planting of 102,128 pine trees (*Pinus sylvestris*). The programme *'I plant my land'* was conducted and involved 153 primary school students of the region of Sanabria. Training workshops in schools and a tour of the forest plantation were held.

- **Helín Forest:** Extraordinary replanting of grapevines (28,328 plants), additional to that included in the agreement.

- **Teruel Forest:** Recovery of 10 hectares of forest burned in Ejulve though the planting of 9,000 pine trees (*Pinus sylvestris*) and 1,000 Holm oaks (*Quercus ilex*).

The figures REE Forest 2009-2015:

Trees and shrubs planted: **473,622**
Surface area recovered: **665 ha**
Emissions offset: **134,126** t **CO_2 eq**.
Investment: **€1,442,489**
Working days: **5,779**

In addition, regarding biodiversity conservation, there are R&D+i projects underway associated with the protection of birds and flora *(see section 6.7).*

6.2.5 Fire prevention

The criteria relative to Red Eléctrica's course of action regarding the fighting of forest fires is formally set out in an internal forestry management document (2nd Edition – Forestry Guide).

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:

- Implementation of best practices in the design and maintenance 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.
- Good 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 and the re-vegetation of degraded areas.
- Elimination of the use of chemical methods for treating the flora in the safety corridors.

These actions result in the number of fires involving Red Eléctrica's facilities being very low.

Since 2007, Red Eléctrica has aimed to continue signing agreements with the different competent administrations regarding forestry management through which, in addition to addressing issues related to the management of safety corridors which electricity lines run through, it also includes other commitments to fight fires. The aim in this regard is to have this type of agreement nationwide.

Within the framework of these agreements various actions were carried out in 2015:

- Creating firebreaks (Balearic Islands).
- Construction of a logistics management mobile unit (Tenerife)
- Material for forestry pruning and felling works (Extremadura).
- Testing of new solutions for the prevention and fighting of forest fires, a biomass control system through controlled grazing (Valencia).
- Training and awareness programmes: work sessions regarding forest fires in Andalusia, technical training days on firefighting safety in Castilla La Mancha, firefighting training programmes in Navarra, awareness and dissemination campaigns (Tenerife and La Palma), travelling exhibition on fire prevention (Valencia) and the publishing of a manual on safety standards in the execution of work on forest land (Valencia).

6.3 Saving of resources: Water and paper

- **Water consumption**

	2013	2014	2015
Head Office (m^3)(1)	10,983	9,177	**9,018**
Head Office (m^3/employee) (1)	13.06	9.60	**9.61**
Work centres (2) (m^3)	31,597	28,069	**27,250**

(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 938 people).

(2) The data provided has coverage of 96%, in terms of personnel. Data for all work centres is not available due to the absence of meters and the breakdown of some devices. Data is reported for 53 of the 66 work centres distributed around the peninsula and on the Balearic and Canary Islands.

Withdrawal by source (%)	2013	2014	2015
Rain water collection tanks	0.15	0.28	**0(3)**
Cisterns	3.20	2.40	**5.04**
Wells	25.27	32.96	**35.44**
Municipal water mains	71.37	64.36	**59.52**

(3) In the Northern regional office and in some work centres cisterns are available for the collection of rainwater for sanitary use, 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)**

	2013	2014	2015
kg	48,333	33,443	18,838
kg/employee (1)	25	16	9

(1) Employee: All REE staff, including interns, workers from temporary employment agencies and collaborators. Total of 2,099.

70% of documents in 2015 are printed or photocopied on both sides (57% in 2014).

The table below shows the evolution of paper consumption in publications in the period 2013-2015.

	2013	2014	2015
kg	30,190	14,275	16,036
% FSC *	100	100	100
% FSC 100% Recycled	---	8	2
% FSC 60% Recycled	---	92	84

** Ecological paper certified to Forest Stewardship Council standards.*

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.

Red Eléctrica already has information available on eight Autonomous Communities, 50% of the work has been completed and its conclusion is foreseen in 2016

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 2015, archaeological supervision was also carried out in the construction of 22 lines (in 14 of which (63.6%) was undertaken with the permanent presence of an archaeologist during the earthworks, in all or part of the route) and in 4 substations (100% permanent presence of an archaeologist during earthworks).

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

Noteworthy from an archaeological point of view was the work of the Eskatxabel I megalithic monument and the mountain forge in Peña Helada 1. Both actions are linked to the Galdames line (Penagos-Gueñes 400 kV line between towers 126 and 147).

The objectives of the Eskatxabel I archaeological assessment are:

• Archaeological assessment by stratigraphic and architectural review of a megalithic monument excavated in 1963.

• Evaluation of the state of conservation and the application of protection-preservation and appreciation in value measures.

• Reintegration of the 1963 excavation trench, risk to the stability of the monument.

Once the assessment was completed it was found that this element is included among those defined as "monuments of earthy stone core and shell", with dimensions of 18 m x 16.80 and 1.50 m high. Different evidence points to its construction in an old megalithic phase (Neolithic) between the 5th and 6th millennium BC.

As for the archaeological excavation project of the Peña Helada 1 mountain forge located in the town of Galdames in the province of Vizcaya, this was included as an accompanying measure to the line variation project. In the Environmental Impact Statement (EIS) its marking was requested, but in the end it was decided that a more detailed intervention should be undertaken.

The Provincial Council of Vizcaya (specifically the Forestry Service), which owns the land on which the remains were located, in collaboration with the archaeology team of the Basque Country Mining Museum, made the decision to intervene at the site as it was located close to the installation of one of the towers of the line and today it is still in apparently good condition (catalogued item in the General Heritage Inventory of the Basque Government).

The element concerned, an old mountain forge workshop for the production of iron using pre-hydraulic methods attested by the existence of deposits of iron slag, is located in the mountains of the municipality of Galdames, in the province of Vizcaya.

The type of field intervention that was carried out was that of archaeological excavations in the area, as is outlined in the Basque Cultural Heritage Law 7/1990. The archaeological excavation was conducted at the location where evidence indicated the possible location of a paleo-metallurgical workshop to be excavated. The excavated area was about 100 m^2, an area identified by the geophysical survey carried out under the instructions of the project manager regarding the extension of the area and the prospecting system to be used. The project was directed and supervised by the director of the archaeology team of the Basque Country Mining Museum, the main expert on the phenomenon of the mountain forges in Vizcaya, in addition to being the coordinator of the team that found the site to be excavated.

Finally, noteworthy was the restoration of natural spring water fountains located the El Escobal, Los Llanos and El Suto in the Riano neighbourhood of Solórzano. Clean up works were carried out of the areas around these three fountains, which were covered by vegetation, and which historically have been used by the residents of the area. Also, perimeter roads were renovated and fences were erected and informative signage was put up.

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 2015 calculations were conducted for the following infrastructure at the request of the local administration and other interested parties:

- *66 kV Cable - Sant Martí-Alcudia 2*
- *220 kV Anoia – Rubi line and 220 kV Abrera – Pujalt line, municipality of San Esteve de Sesrovires (Barcelona), in the vicinity of the Vinya del Sastret school. (DEDI)*
- *220 kV line Sentmenat – S. Fost – Canyet – S. Andreu – Can Jardí for the connection to the 400 kV Pierola – Santa Coloma circuit.*
- *220 kV Pobla – Isona line*

Only in the case when these parameters are not available is it necessary to conduct measurement in situ.

This is the case of some facilities acquired by the Company in 2010 in the insular systems, for which an **action plan** was established and started in 2015 and which will be completed in 2016. The main parameters influencing the field values that an electricity line can generate are the intensity (magnetic field) and the voltage (electric field) in addition to the distance that the receiver is from the same and other factors that have an influence, although which are not as decisive.

In the definition of the plan, measurements were deemed appropriate for each type of line configuration (defined by their voltage characteristics, geometry and number of circuits) in places with nearby buildings. In this way, this has resulted in a total of 19 measuring points in the Balearic Islands and 25 in the Canary Islands, with 30% having already been completed, all values are consistent with the recommendation.

On one-off occasions, Red Eléctrica additionally performs some measurements in situ at the request of interested parties; in 2015 the following were conducted:

- *220 kV Casa de Campo – Villaviciosa I and II line, municipality of Pozuelo de Alarcón (Madrid), in the vicinity of the Retamar school.*
- *220 kV Anoia – Rubi line and 220 kV Abrera – Pujalt line, municipality of San Esteve de Sesrovires (Barcelona), in the vicinity of the Vinya del Sastret school.*
- *220 kV Aldaia – Torrente line, municipality of Valencia, in areas close to a home.*
- *66 kV Guía de Isora – Los Olivos line, municipality of Adeje (Santa Cruz de Tenerife), in areas close to a home.*

The results of both predictive calculations and measurements made in situ were correct, registering in all cases values below those recommended by the European Union. During 2015, there were no incidents resulting from non-compliance of norms in this area.

Moreover, Red Eléctrica considers it of utmost importance to remain abreast of all news generated on the topic, as well as to participate in various working groups and actively support research projects in this matter. Therefore, the Company has signed up to an international information service (ELF Gateway, which reports almost daily via email to its customers all the news appearing in the world) and maintains contact with different organisations and associations.

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.

Taking this knowledge as a starting point, preventive and corrective measures associated to different technologies can be assessed, their effectiveness tested and their implementation in existing and future facilities can be promoted. These measures will be designed based on the characteristics of each acoustic emitter. As an innovative measure, possible technical solutions to reduce noise and make proposals that serve for effective noise reduction will be studied.

In 2015, there were no incidents resulting from non-compliance in this area.

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.

In recent years, the largest quantities of waste are associated with the activities for the adaptation of facilities, given that a major campaign is being undertaken to bring the assets acquired from other companies to Red Eléctrica's standardised criteria.

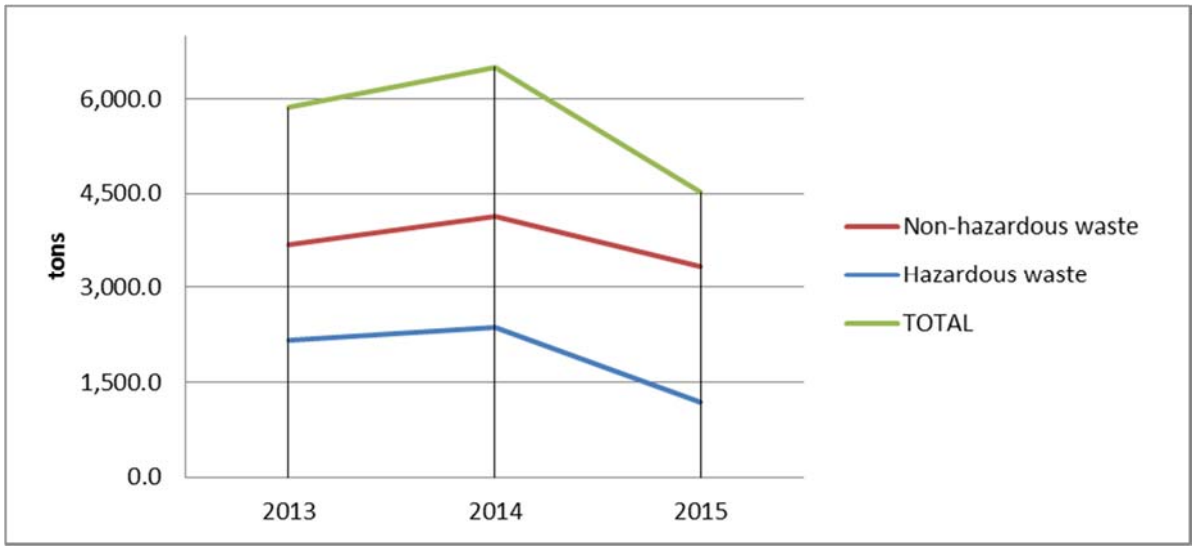
Processes have been established that help minimise the quantity, such as the regeneration of power transformer oil for its reuse and the reduction of the hazardous nature of some of the products used. This process has given way to identify an opportunity to reduce 'water-oil mixture' waste and an R&D+i project has been commenced to develop a process which, by using a mobile treatment plant, allows the in-situ separation of water from oils and greases, so that the amount of hazardous waste that is necessary to be transported and managed is minimised.

However, and 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.

The waste generated in construction activities is managed by contractors. For all works there is a waste management plan which sets out the management to be carried out in each case, with the criteria of minimisation and reuse established as a priority (which is especially important for surplus excavation material). In addition, Red Eléctrica includes specific waste management requirements in the contractual documentation of works and reviews compliance through monitoring visits to works and through the control of documentation.

In general terms, the amount of waste generated in 2015 registered a considerable decrease of 1,990 tonnes compared to 2014.

Specifically, the volume of non-hazardous waste decreased by 800 tonnes (19.3%) compared to last year while the hazardous waste decreased by 1.190 tonnes (50%).



The following are of note based on waste type:

Non-hazardous waste:

- Increase of inert waste due to a greater number of renovations and improvements performed in facilities throughout 2015 and that required civil works.
- Reduction in the management of septic tank sludge, which experienced a stabilisation in 2013 and 2014. 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.
- Substantial reduction paper and cardboard waste generated.
- Continued values in wood waste managed as a result of the implementation in 2014 of measures to improve segregation practices and delivery to an authorised waste management company at the logistics centres.
- The other non-hazardous waste, generated in insignificant amounts, follow the trend of previous years.

Non-hazardous waste	Quantities managed (t)			
	2013	2014	2015	Type of management (2)
Septic tank sludge	1,311.240	1,380.716	1,087.310	Composting
Metallic waste not contaminated with hazardous substances	1,513.762	2,022.441	1,476.903	Recycling
Inert waste	544.082	329.005	537.505	Recycling (60%)/Incineration and Controlled elimination-landfill (40%)
Paper and cardboard	241.938	262.328	95.106	Recycling
Toner and printer inks (1)	0.022	0.014	0.008	Recycling
Wood	69.581	119.834	119.939	Recycling
Vegetable waste (3)	8.567	6.82	68.300	Recycling
Non-hazardous electrical and electronic waste	3.443	1.415	0.291	Recycling
Plastics	4.957	12.014	15.483	Recycling (90%)/ Controlled elimination-landfill (10%)
Glass	0.176	0.040	0.010	Recycling
Vegetable cooking oils	4.800	5.640	1.160	Regeneration
Alkaline batteries - Non Mercury	0.033	0.040	0.051	Recycling
Total	**3,694.034**	**4,133.487**	**3,333.766**	

(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) The data shown is not included in the calculation of the total non-hazardous waste. The value shown is not significant due to the fact that the greater part of this waste is incorporated into the land or given to landowners. Only waste which cannot be managed as indicated previously and that is actually delivered to the waste management company is included. This information is not included as it is not considered relevant and could lead to error.
(3) Default Procedure for the contractors responsible for waste management.

Hazardous waste:

- Noteworthy is the decrease in the generation of hazardous electrical and electronic equipment waste: Equipment containing oil, compared to 2014 when a high number of actions for the renovation and upgrading of substations acquired from EDE in the Canary Islands Regional Area were carried out, and a damaged transformer at the Puentes García Rodriguez substation (188 t) was removed. The real impact of the incorporation of the logistics centres in the calculation can be considered limited as even when compared to the values of 2013 (year in which they that were not incorporated) the amount managed decreased.

- Decrease in gas-pressurised containers. The implementation of the new procedures for the management of SF_6 gas in 2013 and the change of supplier in that same year resulted in an increase in the removal of bottles containing this gas in 2013 and 2014, observing a reduction with regard to the two preceding years..

- Considerable decrease in the amount of transformers, equipment and oils with PCBs with regard to the amounts registered in 2014 as a result of the work performed under the MAR project (Grid Asset Improvement) and that represented the substitution of equipment in substations acquired from utility companies. The quantities generated nowadays shall be limited to the one-off situation when contaminated airtight equipment manufactured prior to 2000 is replaced at the end of its useful life.

- Continued decline in the volume of soil/earth contaminated with hydrocarbons, mainly due to reduced requirements for adequacy of containment systems for power transformers.

- In general terms, the rest of the hazardous waste continues the trend of previous years, with the logical variations resulting from the execution of the corresponding periodic maintenance.

Hazardous waste	Quantities managed (t)			
	2013	2014	2015	Type of management [3]
Used oil	287.967	315.235	172.389	Regeneration
Oils with PCBs	0.137	0.160	0	Elimination
Oil/water mix	929.592	362.868	418.535	Regeneration (90%) /Elimination prior evaporation (10%)
Diesel/water mix	0.400	0.021	0	Valuation (90%) /Elimination prior evaporation (10%)
Transformers and equipment with PCBs [1]	10.477	23.175	3.942	Valuation (60%)/Elimination (40%)
Hazardous electrical and electronic waste: equipment containing oil	307.077	1.248.046	275.542	Valuation
Hazardous electrical and electronic waste: Other	59.897	132.724	119.476	Valuation
Nickel-cadmium accumulators	112.035	73.102	33.352	Recycling
Lead batteries	15.062	2.131	0.661	Recycling
Earth impregnated with hydrocarbons	383.033	195.348	144.864	Controlled elimination-landfill
Containers that have contained hazardous substances	5.077	7.057	5.600	Recycling
Absorbent materials, filtering materials, cleaning rags/cloths and protective clothing contaminated with hazardous substances	47.057	3.964	2.770	Valuation/ Controlled elimination-landfill
Silica gel and other inorganic chemical products	0.848	0.000	0.673	Elimination
Non-halogenated solvents	0.047	0.004	0	Regeneration (80%)/Elimination (20%)
Halogenated solvents	0.108	0.000	0	Regeneration (70%)/Elimination (30%)
Water-based cleaning liquids	0.000	0.059	0	Valuation
Paint waste	0.372	0.284	1.749	Valuation (40%)/Elimination (60%)
Insulation material (with or without asbestos)	1.244	1.154	0.291	Controlled elimination-landfill
Laboratory chemical products containing hazardous substances	0.354	0.344	0.951	Elimination (physical-chemical treatment, incineration)
Gases in pressurised containers [2]	8.522	7.690	3.191	Regeneration
Anti-freeze containing hazardous substances	0.029	0.080	0.043	Regeneration (60%)/Elimination (40%)
Florescent tubes	0.974	0.517	0.548	Recycling
Batteries	0.028	0.015	0.092	Valuation
Fuel oil and diesel	0.000	1.041	0	Valuation
Total	**2,170.337**	**2,375.019**	**1,184.669**	

(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.
(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 0.27% of total hazardous waste has been transported internationally.
(3) Default Procedure for the contractors responsible for waste management.

Waste management type (%)

	Non-Hazardous	Hazardous
Composting/Regeneration/Recycling	93,5	50,0
Valuation	0,0	33,8
Elimination (any method)	6,5	16,2

❖ **Reverse logistics project 'Sustainable Stock'**

In 2015, this pilot project was developed that involves the application of a reverse logistics model to manage inactive equipment or materials, obsolete or over-stocked, so that a full or partial recovery of its components can take place.

This project closely follows the principle of the 3Rs: Reduce, Reuse and Recycle.

The application of this methodology has been a clear improvement in the management of stored material that required it be categorised as redundant stock, with 89% of the material to be removed having been auctioned off as useful.

The development of the project in 2015 has led to an economic benefit of 55,623 euros, which when dealing with the management of materials as waste, has represented a net improvement for Red Eléctrica of 80.32%.

6.6 Prevention of Soil Contamination

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 2015, 32 PSRs/SRs were presented.

During 2015, and as a result of these requests, the following work was carried out:

- Exploratory Analytical investigation of soil in the Puentes García Rodriguez 400 kV substation (in progress).

- Actions regarding the remediation of affected soil in the Portodemouros 220 kV substation (concluded).

- Monitoring of groundwater in the Loeches and Valdemoro substations (concluded).

Throughout the year final a resolution was obtained for the remediation of soil carried out in the Portodemouros substation granted by the Regional Government of Galicia. Additionally, the Community of Madrid has resolved that the Control and Monitoring Plan of the quality of groundwater conducted in the Loeches and Valdemoro substations during 2014/2015 have been finalised, considering them as concluded as no anomalies in the values above current regulatory limits in force were found.

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

- **Purchase of new land**: prior to the formalisation of the purchase of new land for the installation of a new substation, enlargement, etc., 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 2015, 5 characterisation studies were carried out in the purchasing process corresponding to land for future substations (*Buniel, Tías, Tábara, Jares and Gran Tarajal*). In no case were prior impacts on lands detected.

- **Existing facilities (substations)**: whenever geotechnical work is performed in an existing substation at the same time a sampling of soil and/or groundwater is conducted in order to determine 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 impacts due to the activities undertaken on the site by other operators prior to the presence of Red Eléctrica on said site.

13 specific characterisation studies were performed on existing substations. (*La Mudarra, Majadahonda, Vitoria, Caparacena, Guadame, Villarino, Arkale, Huelves, Portodemouros, Rocamora, Tibo, Villarino Auxiliary Services and Badalona*)

In none of the cases were values of contaminants found to be exceeding the limit levels except in Badalona. Hydrocarbon and heavy metal values in the Badalona substation were detected in a non-homogeneous manner and at different depths and the values detected exceeded the limits established by current legislation. This impact is attributed, mainly in the superficial horizon, to the historical activity on the site (drainage of the marsh containing residues from pyrite roasting) and the surroundings.

Furthermore, the substation is built on the site of an old coal-fired thermal power station and is surrounded by the Badalona fuel-oil thermal power station (being dismantled and immersed in a volunteer project of soil decontamination). The land on which the facility is constructed is not owned by REE. With the values detected, initially it is only necessary to address the undertaking of possible excavation works in affected areas from the point of view of the prevention of occupational health and safety risks without the need to take environmental measures.

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

During 2015, the competent authorities were duly informed of the accidents that occurred in the Tajo de la Encantada substation (estimated area affected 285 m^2 and 1.5 m deep) and the Villaviciosa substation (50 m^2 and 1.5 m deep) and the relevant technical documentation describing the consequences from the point of view of impact on the soil was provided. In no case did this impact affect the groundwater nor did it result in the environmental risk levels being exceeded.

In the case of the Tajo de la Encantada substation, in late 2015 remediation work began and was concluded in the first half of 2016. Approximately 800 to 1,200 tonnes of affected soil is expected. Actions in the Villaviciosa substation will be undertaken next (estimated 150-200 tonnes affected). This remediation action will return the hydrocarbons (TPH) parameter of the soil to limit levels at 50 mg/kg.

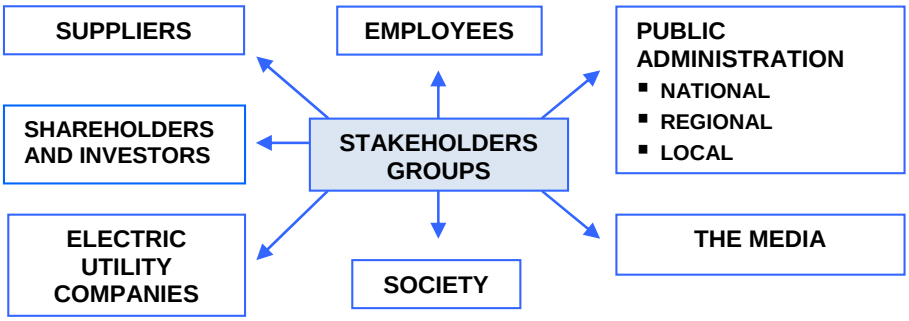
In the case of lines, during 2015 there were two specific accidents due to the breakage of bottle ends on towers for overhead to underground connexion and the dropping onto the soil, in a dispersed fashion, of oil containing silicone (approximately 100-150 litres). In one case, in addition to soil remediation measures, the subsequent of soil remediation verification was carried out.

- **Other related actions**

In this regard, in 2015 a specific project was launched called **Environmental risk assessment and identification of environmental liabilities regarding soil and groundwater in electricity substations.** The objective is to develop a homogeneous risk map of facilities that allows the implementation of preventive resources to be prioritised. Among the aspects considered, in addition to the potential risk of soil and groundwater impacts associated with the various elements of substations, also taken into account are the risks linked to the historical activities of the sites and other neighbouring activities, as well as the environmental value of the environment and its vulnerability.

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 Enquiries and Grievances

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 2015, **85 claims of an environmental nature** were managed in Red Eléctrica through the DIGAME service, **of which 21 resulted in grievances**.

Of those directly managed by the Environmental Department (25), only 22 were as a result of Red Eléctrica's work, facilities or management.

All grievances submitted in 2015 were addressed and resolved in the same year. Additionally two grievances corresponding to 2014 were concluded, whereby all grievance cases that had been reported prior to December 2015 have all been closed (as at 31/12/2015).

The areas for which stakeholder groups have contacted Red Eléctrica in the last three years were as follows, highlighting the claims received by the different organisational units as a result of the felling and pruning of flora:

	Evolution of claims			Evolution of grievances [2]		
	2013	2014	2015(*)	2013	2014	2015(**)
Birdlife	7	2	4	0	0	0
Electromagnetic fields	5	3	17	0	1	1
Consumption/Energy efficiency	1	0	1	0	0	0
Environmental costs	0	0	0	0	0	0
Emissions/Climate change	6	1	11(***)	0	0	0
Impact on the landscape	0	1	1	0	1	0
Facilities	3	0	5	2	0	0
General environmental information	8	7	8	0	0	0
Waste	1	5	0	0	2	0
Noise	0	2	3	1	0	1
Environmental management system	0	0	8	0	0	0
Flora	1	18	27	0	11	19
Total	**32**	**39**	**85**	**3**	**15**	**21**

(*) 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.
(**) Only includes grievances in accordance with procedure IQ002.
(***) 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.
(1) The disciplinary proceedings are detailed in paragraph 16 of this report.
NOTE: In addition to the 21 grievances were classified as founded, 9 grievances were classified as unfounded.

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.

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. Since in many cases this monitoring is done by external supervisors, there is a personal accreditation system of said supervisors, which ensures their ability to perform this task according to the criteria of Red Eléctrica.

In addition, Red Eléctrica demands having a documented Environmental Management System or certified by a third party for those suppliers with greater environmental impact (service providers that can generate direct impacts on the environment and equipment suppliers whose production is intensive in the use of resources). During 2015, work continued on improving the identification of environmental impacts associated with each of the contracted services and the definition of specific requirements that providers will be required to comply with depending on the type and relevance of said impacts (potential and real). During 2016, these requirements will be included in the supplier qualification process.

In addition, the Company has begun to assess the environmental performance of suppliers and whose result is taken into account in their overall assessment, but which may also be grounds for their disqualification.

6.7.3 Internal training and awareness

We consider 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 2015 was 7.3% (compared to 3.5% in 2014) and a total of 2,462 hours of training was received (compared to 2,046 hours in 2014). The hours of environmental training represent 1.44% of the total hours (170,436 hrs).

During 2015, environmental training has been provided related to the "Handling of SF6".

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 in force with organisations** from 9 Autonomous Communities (*Andalusia, Aragón, Castilla La Mancha, Extremadura, the Balearic Islands, Navarra, the Canary Islands, Basque Country, and Valencia*) related to the **prevention of forest fires**. The total associated budget is €1.1 million every five years.

The main actions carried out in 2015 within the framework of these agreements are the following:

Territorial scope	Noteworthy projects in 2015 linked to collaboration agreements
ANDALUSIA	Training days regarding the risk of forest fires associated to facilities
CASTILLA LA MANCHA	Technical training days regarding safety in fire-fighting operations in the Castilla-La Mancha region.
CASTILLA Y LEÓN	The Red Eléctrica Forest, located in la Carballeda (municipality of Espadañedo, Zamora)
EXTREMADURA	Forestry treatment equipment/materials
	Experimental reforestation in the Monfragüe National Park
AUTONOMUS COMMUNITY OF VALENCIA	Biomass control through controlled grazing in Valencia.
	Travelling exhibition about forest fire prevention in Valencia. Printing of forest fire prevention safety rules manual regarding the execution of works and actions conducted in forested land or surrounding areas.
BALEARIC ISLANDS	Creation of a self-protection fire-break strip for residential areas located in forested areas with fire risk.
	Experimental technique targeted towards the recovery of Posidonia Oceanica seagrass meadows.
CANARY ISLANDS	Public awareness campaign. Mobile management logistics station. (Tenerife). Public awareness and dissemination campaign. Forested/Urban interface area. La Palma.
NAVARRA	Extinguishing forest fires training programme in virtual scenarios given to 28 members of both the Fire Brigade and the Forestry Service from the Environment & Water Department of the Navarra Region.
	Restoration of a wooden walkway at the source of the Urederra river in Navarra.

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	
Study committee C·3. (Environment): Secretaryship of the committee	
National CIGRE committee (Environment committee)	
Twinning Project with NEPCO (Jordanian TSO) Twinning Project JO/12/ENP/EY/21	Institution Building for the National Electric Power Company (NEPCO) in Jordan
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
Conservation Centres Working Group Environmental Impact Assessment Working Group Environmental Inspection and Monitoring Working Group Carbon footprint technical committee Industrial Emissions Directive/Contaminated Soils Working Group	CONAMA Foundation
Biodiversity Management Observatory Consultation Committee Energy Efficiency Observatory Sustainable Mobility Observatory	CES (Club de Excelencia en Sostenibilidad)
Working group on electricity lines	Spanish Initiative Company and Biodiversity
Working group on "The Company and Biodiversity"	CONAMA Global Nature Foundation
Presentation of the Project "Mapping of Brid Flight Paths"	Benchmarking ADIF

WG - WORKING GROUP

❖ Congresses and informative sessions/days

Congresses and informative sessions	Organiser
Training session "Prevention and Extinguishing Forest Fires in the surroundings of Electricity Infrastructure" (presentation)	REE & Regional Government of Andalusia
20 years of premium environmental management. High Level Conference on EMAS	European Commission
Grid Aesthetics - How to engage stakeholders in landscape planning, design and aesthetics of grid infrastructure	Renewables Grid Initiative (RGI)
Offshore Grid Infrastructure: Enabling Multi-Functionality and Environmental Monitoring. RGI expert workshop	
"Final Best Grid Conference: Implementing PCI´s" (http://www.bestgrid.eu/)	
10th Biodiversity Week (presentation)	Regional Government of Valencia
2nd General Assembly INSPIRE-Grid Project	ETH Zürich & RSE
Environmental Framework Programme of the Basque Country	IHOBE
4th Campus on Electrical Energy of Castilla y León (presentation)	Regional Government of Castilla y León and REE

6.7.5 Communication and dissemination of environmental information

In 2014, the number of visits to the environmental section of the corporate website (www.ree.es) totalled 15,808. Since 2014, a new methodology for counting visits has been used, the so-called *tags* for web analytic trends for Google Analytics, so the number of visits in 2015 is comparable only with the number of hits obtained in the previous year (17,992 visits).

The main publications in 2015 were:

- **Corporate Responsibility Report 2014**
- **EMAS Environmental Statement 2014**

The distribution of environmental publications in electronic format in 2015 was as follows:

- Publications related to electric and magnetic fields: 13,995 views/downloads (compared to 6,705 in 2014).
- EMAS Environmental Statement: 25,518 views/downloads (compared to 3,806 in 2014).
- Environmental Report Summary (Environmental commitment - PDF): 19,195 views/downloads (compared to 1,966 in 2014)
- Other environmental publications: 76,056 views/downloads.

In addition, throughout 2015 a total of 30 news articles on sustainability matters and 13 press releases on environmental aspects were issued.

In the natural environment subsection of the sustainability section of the website a new section was created in 2015 "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 2015 the following videos were produced and uploaded:

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

- Project for the reintroduction of the osprey in western Andalusia
- Programme to boost the population of the Golden Eagle in Galicia
- Bonelli 's Eagle in the Sierra de Espadán (Castellón)
- Birds and power lines: Mapping of bird flight paths
- The black vulture reintroduction project in Catalonia
- Migration and global change centre in Tarifa
- Research project for the recovery and improvement of the posidonia seagrass meadows

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 had a new internal portal available called *miRED 2.0*

- An **Environment section** has been created in the following area of the website: *Our Company >> Sustainability >> Environment.* The four main aspects of the Company's activities concerning environmental matters are included there: Environmental Management, Integration into the environment, Biodiversity and Climate Change.
- The **Red Eléctrica eficiente** community has been created in the following area of the website: *Collaboration >> Communities >> Red Eléctrica Eficiente*. A site for the publication of any news items related to energy efficiency and efficient saving of resources as well as latest news. In addition, the projects identified under the *Red Eléctrica eficiente* brand are advertised here.
- The **Sustainable Mobility** community has been created in the following area of the website: *Collaboration >> Communities >> Sustainable Mobility*. This is a support tool designed to communicate those actions linked to the Company's sustainable mobility plan in addition to publications geared towards changing mobility habits.

In addition, different environmental news items are regularly posted on this site.

It is possible that as of 2016, data concerning the impact of miRED on internal environmental communication may be able to be reported.

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: 5 March – World Energy Efficiency Day**

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

  - *You play the leading role in the electricity system. Use energy wisely. #DíaMundialdelaEficienciaEnergética*
  - *Would you like to know the price of your household electricity consumption? #DíaMundialdelaEficienciaEnergética*
  - *Go to the REE website in order to learn how the electricity system works and to learn how to be more efficient. #DíaMundialdelaEficienciaEnergética*
  - *Take advantage of the lower demand during the night-time hours in order to schedule your household electricity consumption. #DíaMundialdelaEficienciaEnergética*

Employees receive an "efficient bulb" as a gift.

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

- Messages and informative articles are published using internal communication means

  - ✓ Messages:
    - *Water is health #díamundialdel agua*
    - *Water is nature #díamundialdel agua*
    - *Water is energy #díamundialdel agua*
    - *Water is equality #díamundialdel agua*
    - *Water and sustainable development #díamundialdel agua*

- **Waste: 17 May - World Recycling Day**
  - Messages and informative articles are published using internal communication means

    - ✓ Article: 5,000 years of recycling: Egypt and Greece
    - ✓ Message: Reduce, re-use and recycle. Use the selective recycling bins #17demayoDíainternacionaldelreciclaje

- **Mobility: European Mobility Week – 16 to 22 September**

  - Launching of REE's sustainable mobility plan
  - Actions linked to mobility week:

    - ✓ Design of all graphical artwork and communication material that identifies REE's sustainable mobility Plan.
    - ✓ On occasion of European mobility week, the new company shuttle bus service for staff was launched, for commutes from home to work and work to home during the entire month of September.
    - ✓ On 22 September, the use of the shuttle bus service is promoted via POP-UP style messages.

6.8 Research and development

During 2015, R&D+i expenditure of an environmental nature totalled 339,554 euros. This amount represents **3.53%** of the total expenditure on R&D+i.

With the collaboration of all involved areas, the following R&D+i projects are noteworthy:

- **Visibility of electricity lines:** Tool for the analysis of the visibility of high voltage electricity lines using a Digital Elevation Model (DEM) that takes into account all the elements that produce visual shields, such as vegetation, buildings and infrastructure.

- **Energy efficiency:** Incorporation of Peltier cells for cooling substation racks and the development of a prototype power transformer that is more sustainable, safe and intelligent.

- **Posidonia Oceanica:** Development of an experimental technique for the recovery of 'Posidonia oceanica' sea meadows through the use of seeds germinated under laboratory-controlled conditions and fragments obtained via natural fragmentation. The aim is to restore areas affected by submarine electricity cables.

- ***'Vegeta'* Project**: the goal is to optimise vegetation treatment cycles so maintenance tasks in safety corridors become more efficient, always ensuring the automatic compliance of all environmental conditioning factors.

- **On-site emptying of oil collection pits**: The goal of the project is to establish a methodology to ensure that the oil collection pits from those substations where there is water/oil mix are emptied, therefore minimising the amount of hazardous waste that needs to be managed and transported.

- **Fast geographic data gathering via RPAS (Remotely Piloted Aircraft):** The Department of the Environment takes part in the project and has requested the analysis of several aspects that could be of interest in order to optimise the environmental activities to be carried out

    - o Detection of wooded areas to be felled and cleared in safety corridors.
    - o Location of nests built on towers and detection of activity in nests (inhabited or abandoned nests)
    - o Environmental control of bird collisions
    - o Data gathering for all sorts of inventories.
    - o Access paths that no longer exist following repowering work or in currently existing lines.
    - o 3D Simulations

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 2015 was 84%.

The table on the following page summarises the objectives addressed during 2015 indicating the contribution of each one of them to the Programme and their level of fulfilment within the year.

ENVIRONMENTAL PROGRAMME 2015

Responsible environmental investment / 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	Methodology to carry out the Landscape and Visual Impact assessments within the Environmental Impact Assessments *(Objective 1)*	Annual	5	5	**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)	10	10	**100**

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	%
Maintenance process	Appropriate overall waste management	Waste management optimisation plan *(Objective 9)*	Multi-year (2015-2016)	5	5	**100**
Presence of facilities. Maintenance process	Prevention of impacts on the environment	Prioritisation in the siting of REE's substations based on potential environmental risk (Risk planning/mapping) (Objective 10)	Multi-year (2015-2016)	15	15	**15**

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 (2014-2016)	15	15	**100**
		Improvement in the collection of data regarding electricity consumption *(Objective 4)*	Annual	9	0	**0**
		Improvement of Red Eléctrica's ranking in climate change related indexes *(Objective 5)*	Multi-year (2014-2016)	8	8	**100**
		Reduction of SF_6 gas emissions *(Objective 6)*	Multi-year (2011-2020)	5	0	**0**
Energy efficiency	Activities regarding significant environmental aspects	20% reduction in energy consumption by 2020 *(Objective 7)*	Multi-year (2011-2020)	10	8	**80**

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 8)*	Multi-year (2011-2020)	10	10	**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	External dissemination of environmental actions and promoting the communication of results. EMFs publication update *(Objective 11)*	Annual	4	4	**100**
		External dissemination of environmental actions and promoting the communication of results. Improved external dissemination of CDP information (Objective 11)	Annual	4	4	**100**
TOTAL FULFILMENT				**100**	**84%**	

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

- **Environmental course of action: Responsible environmental investment/Integration of facilities into the landscape**

OBJECTIVE 1 - Methodology for carrying out the Landscape and Visual Impact Assessment in the Environmental Impact Assessments

Description: Establish a methodology for conducting the Landscape and Visual Impact Assessment in the Environmental Impact Assessments for both substations and electricity lines. The methodology will apply the European Landscape Convention for the different projects of substations and lines in a homogenous manner and allow the identification of lesser impact alternatives from a landscape point of view.

Actions 2015: The methodology defined in 2014 for electricity transmission lines has been implemented in the impact assessment study of the 220 kV Benahadux – Saleres line.

Fulfilment: 100%

Status: Finalised

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.

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

Description: Based on the different existing configuration of lines (in the Balearic Islands and in the Canary Islands) and depending on both voltage and geometry, several measuring points are identified taking into consideration a set of criteria, in particular, proximity to inhabited or to sensitive areas (schools, playgrounds, hospitals, areas with existing complaints, etc...). Once identified, actual EMF measurements are taken in order to know the values of both electric and magnetic fields generated by the facilities acquired by Red Eléctrica in 2010. Future measurements could be defined depending on the results obtained.

Actions 2015: All critical points on both archipelagos have been identified and defined and 30% of all planned measuring points were carried out.

Fulfilment: 100%

Status: In 2016, the measurement process of the remaining 70% of the measuring points will continue.

- **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 2015: A first methodology stage has been completed involving the development of a theoretical model to calculate the carbon footprint associated to the life-cycle of an overhead line and based on the data available in the implementation project. This stage includes the development of a calculation tool that allows the carbon footprint of the overhead line during the project stage to be determined, prior to its implementation.

Fulfilment: 100%

Status: The objective will continue in 2016 with stage 2, including 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.

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.

OBJECTIVE 4 - Improvement of electricity consumption data

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

Actions 2015: three actions were undertaken throughout 2015

Firstly, there is no existing evidence of the implementation of the proposed improvement actions during the validation of energy management equipment in 2014. The organisational units report that 100% of the actions have been implemented (engineering carried out since the middle of the year), but no evidence of compliance has been supplied.

Also in the case of the milestone that included the installation of energy efficient equipment for the Mudarra warehouse, this was installed and put into service in late 2015 but after the deadline set for the objective.

Finally, regarding the milestone whose objective was the installation of an energy efficiency management piece of equipment in the Tenerife building, since the building and their electricity distribution panels are property of ONO, it has not been possible to perform any actions on the panels; there was no construction plans nor documentation related to these services available.

Fulfilment: 0%

Status: Finalised. Activities are not being continued in 2016. The energy efficiency equipment in La Mudarra warehouse has been totally installed and it is already supplying measurements in 2016. Regarding the installation in the building in Tenerife, since it is not owned by REE and due to the difficulties had with the owner of the building, installation has definitely been ruled out.

OBJECTIVE 5 - Improvement of Red Eléctrica's ranking in climate change related indexes

Description: Improvement of the score in the area of Disclosure of the CDP (Carbon Disclosure Project)

Actions 2015: A score of **100B** was obtained, exceeding the 83B obtained in 2014, improving the score by **20.5%**

Fulfilment: 100%

Status: Completed. No objective related to the Carbon Disclosure Project (CDP) has been maintained as the assessment method for the 2015 questionnaires is expected to be changed. The details regarding the rating criteria are not known and there is no starting point for REE related to said criteria. The only available information is that according to the new methodology the criteria of transparency and performance are to be combined. REE has difficulties in order to attain high performance ratings due to the impossibility to specify objectives and targets for reduction of emissions associated to transmission grid losses and therefore it is difficult to estimate a result of the assessment.

Actions in previous years:

- 2014: A score of 83B was obtained, exceeding the 71B obtained in 2013, improving the score by 18%.

OBJECTIVE 6 - 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 2015: It has not been possible to establish during 2015 a reduction plan for SF_6 leaks (Stage 1: report identifying equipment with high leakage rate. Proposal of solutions) due to various reasons. Its reformulation and the broadening the scope of action are deemed necessary, both goals are integrated in 2016 managerial objectives. The proposed objective for 2016 is to 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)

Fulfilment: 0%

Status: Delayed. It will continue in 2016, though reformulated. As for the emission rates this has been reduced from 2011 to 2015 going from 1.16 to 0.37. The 2020 target at the end of 2016 once the new situation is analysed will be redefined.

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 was 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. The validity term of the objective is extended until 2020 (prior validity term was 2014). SF_6 emission rate dropped between 2011 and 2014 from 1.16 to 1.05. The objective sought for 2020 is 0.8.

OBJECTIVE 7 - Reduction of energy consumption

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

Actions 2015: The report "Measurements of ancillary services systems of facilities of the transmission grid: energy efficiency" has been drafted. This document will be used as a support for all future objectives and targets that are prepared in this field. In addition, the insulation of the piping on the roof of the East building has been completed and the aluminium carpentry of the façade of both the North and South buildings has been replaced; these buildings are located at the Head Office (La Moraleja). Energy saving measures could not be implemented in the work centres of Tres Cantos and Las Palmas. There is no forecast at present to carry out said implementation in 2016.

Fulfilment: 80%

Status: Will continue in 2016.

With the actions implemented so far, REE has been able to reduce its electricity consumption, measured in kWh, by 5.7% in relation to the base year (2010).

The reduction effort is not distributed evenly throughout the entire period (2010-2020), it was estimated that by the year 2015 the Company should have reached it reduction objective of 5.5%, therefore the target set for 2015 has been achieved.

However a redefinition and adjustment of this objective is foreseen as a consequence of the results of the energy audits that will be carried out in 2016 as part of the framework for compliance with Royal Decree 56/2016 on Efficiency

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.

• Environmental course of action: Biodiversity

OBJECTIVE 8 - 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 that the risk of birdlife collisions with these facilities is reduced. In addition, the objective is to implement a methodology for the collection and analysis of data of accidental bird collisions.

Actions 2015: The "Birds and power lines: Mapping of bird flight paths" project continued with the design of multi-year plans for the marking of lines in the Autonomous Communities of Valencia, La Rioja, Navarra, Cantabria and Asturias. Therefore multi-year plans for 7 of the 17 Autonomous Communities are now available.

Moreover, training on the new methodology developed regarding EMA's concerning birdlife in the operating stage of facilities has been given to 100% of those people responsible for the drafting of the Environmental Monitoring Plan (EMA).

Fulfilment: 100%

Status: Will continue in 2016 with the design of the rest of multi-year prioritisation plans (remaining 10 Autonomous Communities) and with the commencement of the installation of line markers set out in the plans for the Autonomous Communities of the Balearic Islands and Canary Islands.

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.

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

OBJECTIVE 9 - Waste management optimisation plan

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

Actions 2015: In an early stage, with waste generation data of 2014, the type of treatment/disposal regarding the final management applied to our waste has been identified. In addition, the alternatives to improve waste disposal management have been identified too.

Fulfilment: 100%

Status: Will continue in 2016. Pending for 2016 is the implementation of alternatives for the best type of treatment/disposal regarding the final management of generated waste.

OBJECTIVE 10 - Prioritisation in the siting of REE'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 will 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 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.

Fulfilment: 100%

Status: Will continue in 2016. The rest of the in-service facilities (without transformer capacity) will be assessed and their external risk evaluated in Stage II. In addition, it will be necessary to improve the proposed methodology in the first stage in order to attain more detailed results.

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

OBJECTIVE 11 - External dissemination of environmental knowledge and promoting the communication of environmental results.

Description: Improvement of the external dissemination of the 2015 CDP questionnaire results and update of the publication regarding electromagnetic fields.

Actions 2015: The publication "50Hz Electric and Magnetic fields: analysis of the status of current knowledge (2015 review)" has been completed and updated. Its publication by the Department of Communications is pending.

The CDP result obtained has been published both on the external website as well as on the internal website, in addition to being published in the "*Entrelíneas*" Blog.

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.

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. Thanks to the application of these measures, the consequences of the accidents which have occurred in our facilities have only been of minor importance.

Incidents notified	2013		2014		2015	
	Accidents	Incidents	Accidents	Incidents	Accidents	Incidents
Construction activities	**1**	**39**	**0**	**22**	**0**	**67**
Fires due to fault in lines	0	0	0	0	0	0
Fires due to fault in substations	0	0	0	1	0	0
Leaks and spillages of oil due to error in the filling of transformers	0	0	0	0	0	2
Leaks and spillages of oil and hydrocarbons due to minor breakdowns during the use of machinery during construction works	1	33	0	19	0	60(****)
Leaks and spillages of hazardous substance	0	6	0	1	0	2
SF_6 leaks (**)	-	-	-	-	0	1
Effects on flora	-	-	0	1	0	2
Maintenance activities (*)	**7**	**19**	**4**	**21**	**13**	**30**
Fires due to fault in lines	1	1	0	1	2	1
Fires due to fault in substations	0	1	0	0	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	3	15	2	17	4	25
Oil leaks in lines	0	0	1	0	2	0
Floods	0	0	0	0	0	0
SF_6 leaks due to explosion of equipment or other accidents	2	0	1	1	4	0
Leaks and spillages of hazardous substances	1	2	0	1	0	3
Effects on flora (**)	-	-	0	1	0	0

(*) Bird collisions with power lines in service and under construction are discussed in a separate table (collisions recorded in GEMA)
(**) A new category of accident is included with respect to 2014 called SF6 Leaks
(***) Fire in adjacent plot to the substation
(****) Events related to accidents of very little relevance related to the breakage of machinery hoses or small spills of oil or fuel during decanting tasks and temporary storage are included.

There were no accidents with environmental impacts during 2015 in construction stages. The most relevant incidents in construction works during 2015 (89.5%) were due to oil and hydrocarbon leaks and spillages mainly because of minor breakdowns such as, for example, damaged hoses or dripping caused by leaking machinery.

With respect to the maintenance stage, **there have been thirteen accidents**, nine occurred in substations and four in lines. In addition, 32 incidents occurred and the accidents vary in their sources: oil and fuel leaks and spillages (6), SF_6 leakage (4), fire in the lines (2) and fire in substations (1).

None of the accidents were rated as major or severe (high and medium-high rates on a scale from 1 to 5), but of the twelve recorded accidents six were rated as significant (medium rate on a scale from 1 to 5).

❖ Birdlife collisions

Regarding collisions of birds (species of interest) with electricity lines, in 2015 the following were identified:

Species affected	Nº of birds affected
Great Bustard *(Otis tarda)* (1)	25
Little Bustard (*Tetrax tetrax*) (2) (3)	9
Black vulture (*Aegypius monachus*) (2) (3)	1
Canarian Egyptian Vulture (*Neophron percnopterus majorensis*) (4) (5)	1
Houbara Bustard (*Chlamydotis undulata*) (1) (4)	10
Bonelli's Eagle (*Hieraaetus fasciatus*) (3)	1
Stone Curlew (*Burhinus oedicnemus*) (3)	9
Total	**56**

(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) Endangered species according to IUCN Red List.
NOTE: Collisions are mainly detected during monitoring plans or specific studies.
In 2015 the number of studies conducted increased significantly, mainly in existing facilities.

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 admitted to process, are resolved in all cases with administrative sanctions of low, or very 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 2010-2015.

Type of infringement	2010		2011		2012		2013		2014		2015	
	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
Unauthorised felling and pruning	2	1,067	3	22,477	1	300	4*	1,597	2*	2,175*	1	100
Felling, pruning and clearing without preventive measures	1	722										
Fire due to line discharge	3	13,923	1	3,848	1	3,948						
Works in areas without authorisation / Obstruction of water way	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
Total nº claims-cases/€	**16***	**29,283***	**13**	**31,739**	**8**	**67,483**	**14**	**11,519**	**6**	**6,876**	**5**	**3,911**

(1) Fire risk due to the lack of maintenance of vegetation, or abandonment of material .
(*) Data updated in 2015 following the resolution of pending cases (one case opened in 2013 and three cases opened in 2014). This data is reviewed annually to include cases resolved that were reported in previous years. For this reason, items of data marked in red are those that have been affected by the cases resolved in 2015.

10 ENVIRONMENTAL EXPENDITURE

During 2015, environmental investments totalling **3,856,802.15** euros were made in new facilities, equating to **0.93%** 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 2015 expenditure totalling **18,848,972.08 euros** was made in the improvement and protection of the environment, representing **2.00%** of the total operating costs.

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

	2015 (€)	2014 (€)	2013(€)
INVESTMENT (€)	**3,856,802.15**	**2,651,608.67**	**2,752,119.26**
Engineering and construction of facilities (1)	**3,856,802.15**	2,651,608.67	2,752,119.26
EXPENDITURE (€)	**18,848,972.08**	**19,795,258.595**	**20,620,760.88**
Development of methodology and systems (2)	**47,145.00**	50,082.22	49,980.00
Environmental studies and analyses	**201,743.17**	125,501.85	167,745.71
Environmental actions in facilities in service	**16,722,722.18**	17,502,651.92	18,564,425.16
Prevention of contamination (3)	1,268,564.57	1,376,551.64	1,547,452.53
Protection of biodiversity/landscaping/prevention of fires (4)	14,593,764.69	14,914,991.42	16,039,821.03
Climate change (5)	408,725.36	494,334.77	277,067.17
Energy efficiency and saving of resources (6)	226,418.04	277,152.50	206,834.08
Waste reduction and management	225,249.52	439,621.59	493,250.35
Research and development	**339,553.68**	363,315.53	305,867.75
Training and communication	**176,594.99**	256,722.21	163,179.86
Environmental training and awareness programmes	41,066.55	54,310.00	26,394.42
Communication (7)	135,528.44	202,412.21	136,785.44
Environmental taxes and levies	92,906.06	280,222.87	105,161.83
Municipal and Autonomous Community taxes	92,906.06	280,222.87	105,161.83
Environmental taxes (*)	**1,268,307.00**	1,216,762.00	1,264,400.57
	22,705,774	**22,446,868**	**23,372,880**

(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) "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.
(8) Data reported differ from that included in the 2014 Report, since there has been a change of criteria in the consideration of certain environmental taxes, and have now been excluded from the three years.

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		2013	2014	2015
% of investment on the environment	**Environmental investment / total investment in the transmission grid**	0.49	0.53	0.93
% of expenditure on the environment	**Environmental expenditure / total operating costs**	2.33	2.88	2.00

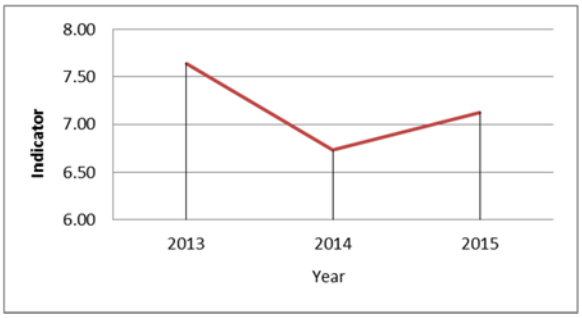
11 INDICATORS

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.

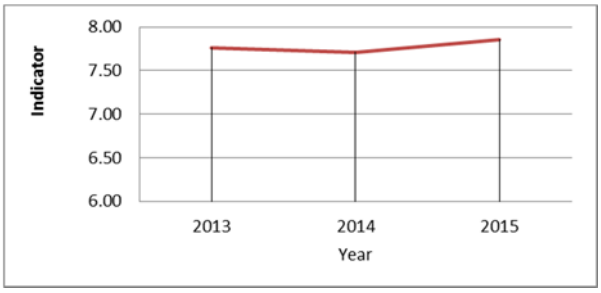
Key Performance Indicators

Electricity consumption at Head Office			
A	MWh consumed		
B	Nº employees at Head Office (*)		
Indicator	A/B		
Year	**2013**	**2014**	**2015**
A	8,566	8,399	8,558
B	1,121	1,249	1,201
Indicator	**7.64**	**6.72**	**7.13**

(*) *La Moraleja and Albatros buildings including interns, temporary employment agency workers and collaborators as they are electricity consumers.*

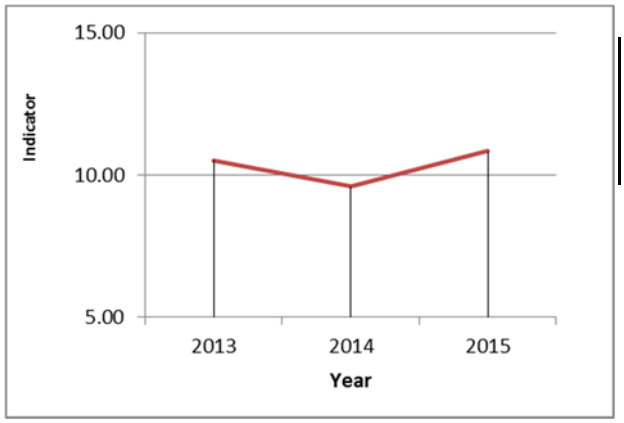


REE Electricity consumption (*)			
A	MWh consumed		
B	Nº employees REE		
Indicator	A/B		
Year	**2013**	**2014**	**2015**
A	15,171.05	16,180.97	15.900,04
B	1,954	2,099	2,024
Indicator	**7.76**	**7.71**	**7,86**



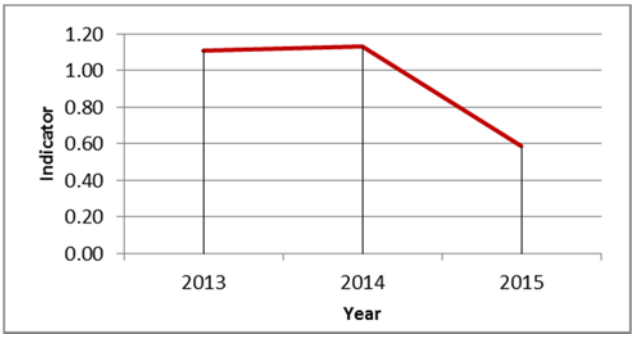
(*) Includes work centres with special characteristics that house the electricity control centres that operate 24 hours 365 days a year and have special energy consumption. In the period 2013 the main work centres of the regional areas (7 centres) were included. In 2014, the consumption of 38 additional work centres was included. In 2015, data is included regarding 14 new buildings.

Average vehicle consumption (l/100 km)			
A	Total fuel		
B	Total Km travelled		
Indicator	A/B *100		
Year	**2013**	**2014**	**2015**
A	475,818	399,387	400,139
B	4,527.709	4,164.362	3,688,979
Indicator [2]	**10.51**	**9.59**	**10.85**



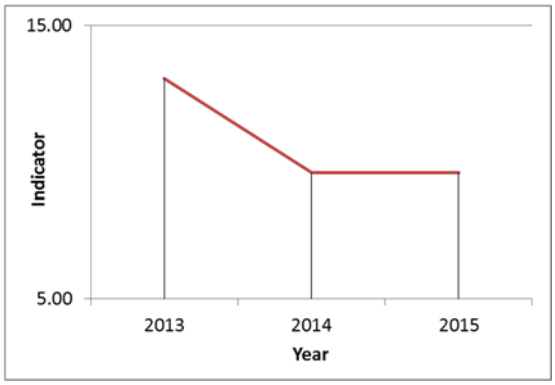
NOTE: Includes consumption of fleet vehicles, cherry pickers and management vehicles until 2013. The figures for 2014 and 2015 do not include management vehicles as they are shared leasing.

Paper consumption			
A	Tonnes (t) consumed		
B	Total Nº of employees (^)		
Indicator	A/B		
Year	**2013**	**2014**	**2015**
A	48.333	33.443	18.838
B	1,954	2,099	2,024
Indicator	**0.025**	**0.016**	**0.009**



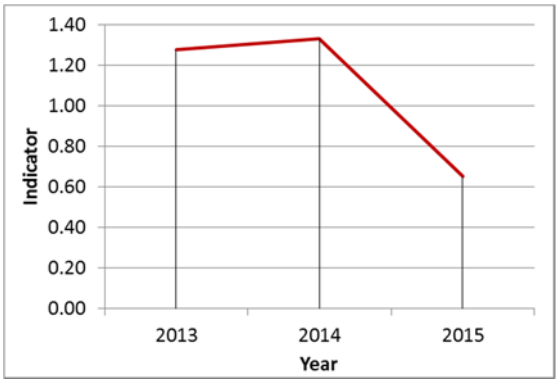
(*) Include interns, temporary employment agency workers and collaborators as they are considered paper consumers.

Water consumption at Head Office			
A	m^3 consumed		
B	Nº of employees at Head Office (*)		
Indicator	A/B		
Year	**2013**	**2014**	**2015**
A	10,983	9,177	9,018
B	841	956	938
Indicator	**13.06**	**9.60**	**9.61**



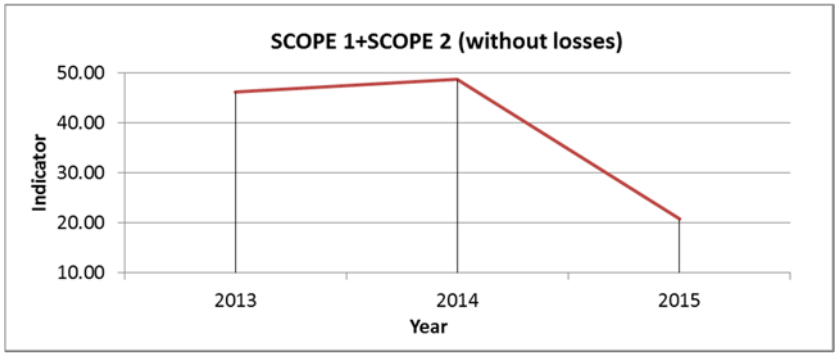
(*) The 'La Moraleja' buildings including interns, temporary employment agency workers and collaborators as they are considered water consumers. The 'Albatros' building is not included.

Hazardous waste			
A	Tonnes (t) of hazardous waste generated		
B	Revenue (millions of euros)		
Indicator	A/B		
Year	**2013**	**2014**	**2015**
A	2,170.337	2,375.019	1,184.669
B	1,701.7	1,783.9	1,823.7
Indicator	**1.28**	**1.33**	**0,65**



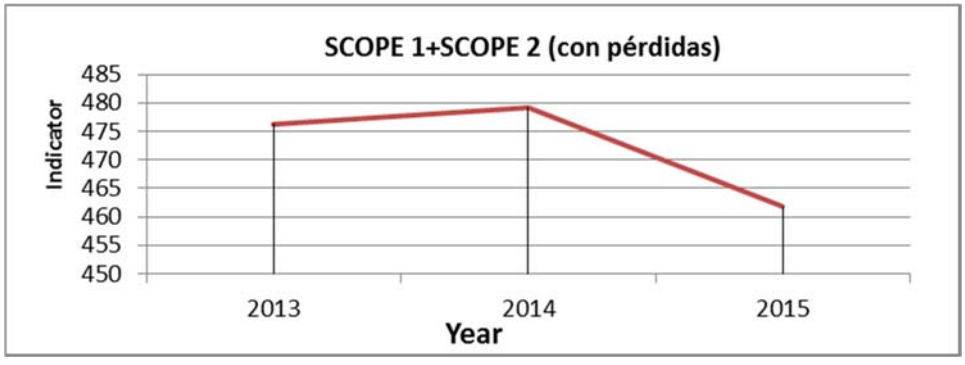
Direct emissions of greenhouse gases (SCOPE1) + Emissions from electricity consumption (SCOPE 2 without losses)			
A	t CO_2 eq (SCOPE 1+ Emissions from electricity consumption)		
B	Revenue (millions of euros)		
Indicator	A/B		
Year	**2013**	**2014**	**2015**
A	78,545	86,992	37,891
B	1,701.7	1,783.9	1,823.7
Indicator	**46.16**	**48.76**	**20.78**

Note 1: Values for 2013, 2014 and 2015 were submitted to independent review in accordance with ISAE 3410.
Note 2: The series show variations from those published in previous years because the emissions associated with electricity generator sets and air conditioning have been included.



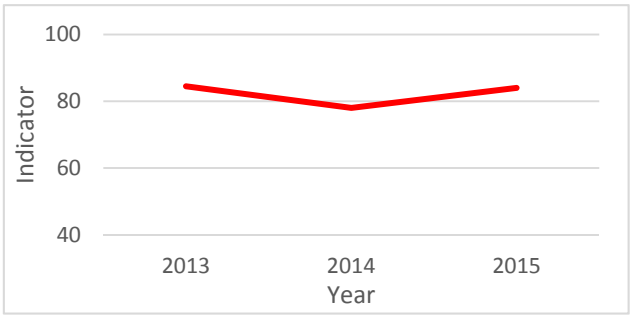
Emissions SCOPE 1+SCOPE 2 including transmission grid losses			
A	t CO_2 eq (**SCOPE 1+SCOPE 2**)		
B	Revenue (millions of euros)		
Indicator	A/B		
Year	**2013**	**2014**	**2015**
A	810,570	854,899	842,009
B	1,701.700	1,783.922	1823.7
Indicator	**476**	**479**	**462**

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

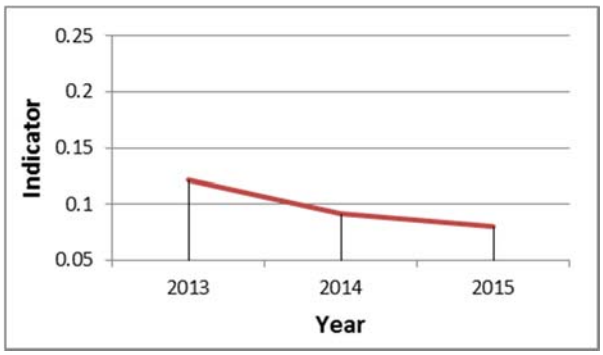


Environmental performance indicators of the activity

% Fulfilment of the Environmental Programme			
A	Environmental objectives fulfilled		
B	Total contribution of the programme		
Indicator	A/B x100		
Year	**2013**	**2014**	**2014**
A	84.50	78.00	84.00
B	100	100	100
Indicator	**84.50**	**78.00**	**84.00**



Biodiversity: Occupation of lands			
A	Area of land in Red Natura occupied by facilities (m^2) (1)		
B	Total area of Red Natura (m^2)		
Indicator	A/B x 100		
	Facilities		
Year	**2013**	**2014**	**2015**
A	$176.112*10^6$	$179.898*10^6$	$179.497*10^6$
B	$145,454.09*10^6$	$195,851.84*10^6$	$223.011*10^6$
Indicator	**0.12**	**0.09**	**0,080**



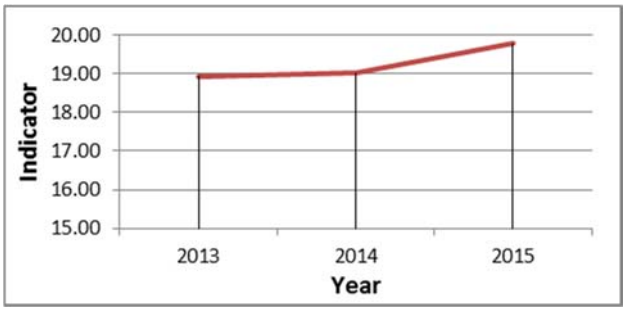
Red Natura (Natura 2000 Network) includes: SCI (Site of Community Importance); SPA (Specially Protected Areas for birds).

(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 2013 ratios, the database of Red Natura 2000 published in 2012 was used. For the calculation of the 2014 ratios, the database published in July 2014 was used and for the calculation of the 2015 ratios, the database published by MAGRAMA in February 2016. 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.

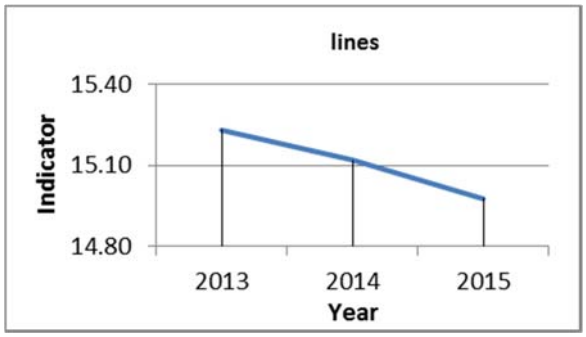
Biodiversity: Birdlife protection			
A	km of lines in SPA's marked with bird-saving devices		
B	Total km of lines in SPA's		
Indicator	A/B x 100		
Year	**2013**	**2014**	**2015**
A	564	578	603
B	2,978.5	3,039.0	3,048
Indicator	**18.94**	**19.02**	**19.79**

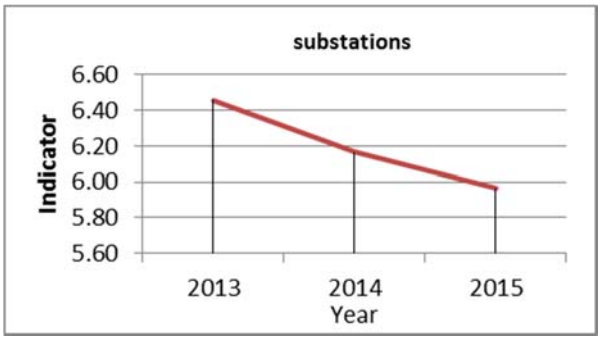


The objective of the indicator is not the marking of 100% of the lines that cross SPAs (Special Protection Areas for birds) as not all bird species present in these areas are prone to colliding with the cables. At this moment the elaboration of an indicator that better reflects the marking needs is being worked on (for its calculation the areas in which species at risk of collision exist will be taken into account, whether they are in SPAs or not).

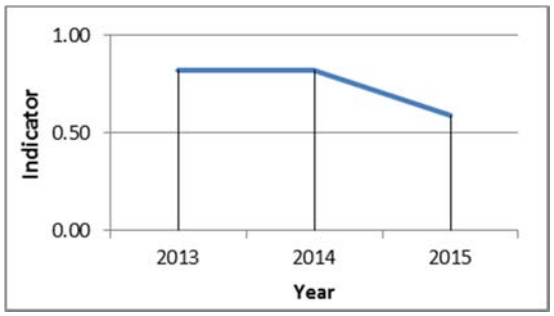
Biodiversity: Impact of facilities						
A	Km of line in Red Natura (*)			Nº of substations in Red Natura		
B	Total km of line (*)			Total Nº of substations		
Indicator	A/B x 100			A/B x 100		
	Lines			**Substations**		
Year	**2013**	**2014**	**2015(*)**	**2013**	**2014**	**2015**
A	4,388.57	4,584.97	4,567.18	41	40	39
B	28,814.26	30,328.13	30,491.60	635	649	654
Indicator	**15.23**	**15.12**	**15.0**	**6.45**	**6.16**	**6.00**

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



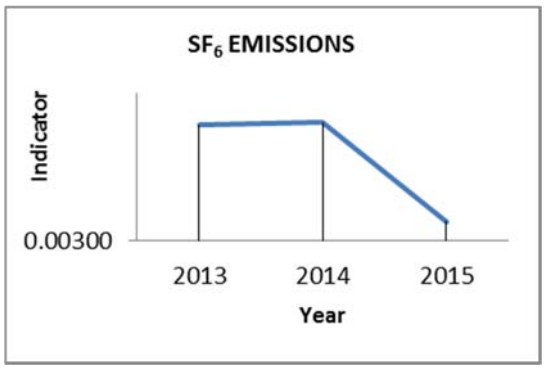


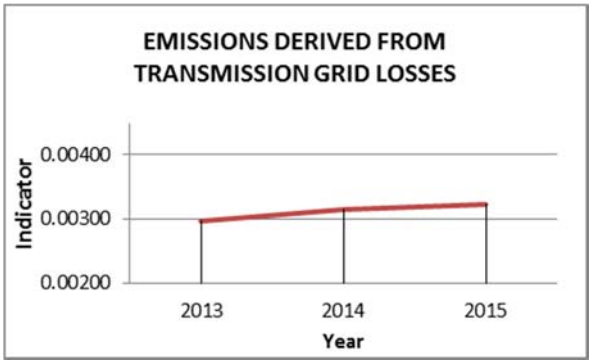
Biodiversity/Relationship with stakeholders			
A	Nº of Autonomous Communities with biodiversity projects		
B	Total Nº of Autonomous Communities		
Indicator	A/B		
Year	**2013**	**2014**	**2015**
A	14	14	10
B	17	17	17
Indicator	**0.82**	**0.82**	**0.59**



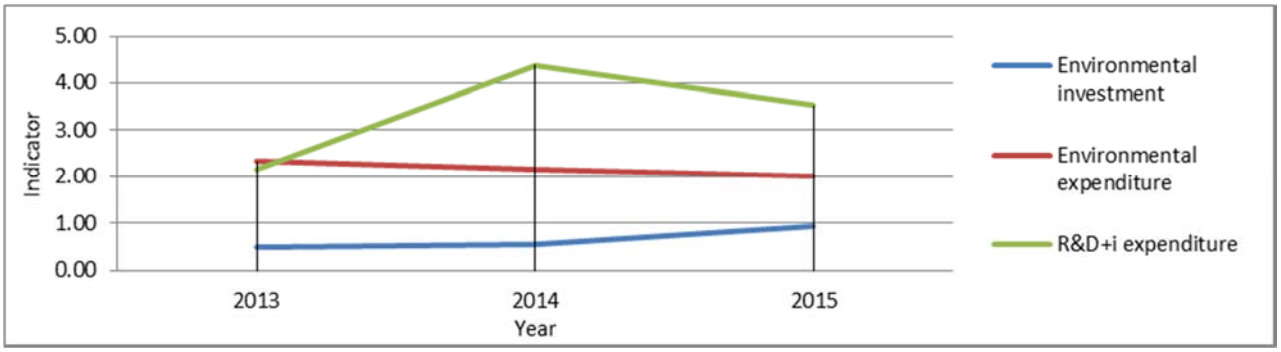
Emissions						
A	t SF_6 emitted (*)			Indirect emissions derived from transmission grid losses (t CO_2 eq)		
B	t SF_6 installed			MWh transported		
Indicator	A/B			A/B		
	SF_6 emissions			**Emissions derived from transmission grid losses**		
Year	**2013**	**2014**	**2015**	**2013**	**2014**	**2015**
A	3.17	3.55	1.39	748,945	767,907	804,118
B	297,694	324,696	37,806	246,206,000	243,395,000	248,025,000
Indicator	**0.01064**	**0.01094**	**0.00371**	**0.00304**	**0.00315**	**0.00324**

Note: The emissions most representative of the activity are emissions of SF_6 (direct) and emissions from transmission grid losses.
(*) To assess SF_6 gas emissions in relation to the total SF_6 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 CO_2 equivalent.



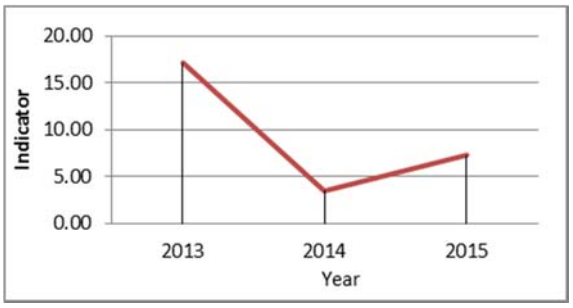


Environmental costs									
A	Environmental investment			Environmental expenditure			Environmental R&D+i expenditure		
B	Total investment			Total expenditure			Total expenditure on R&D+i		
Indicator	A/B x 100			A/B x 100			A/B x 100		
	Environmental investment			**Environmental expenditure**			**Environmental R&D+i expenditure**		
Year	**2013**	**2014**	**2015**	**2013**	**2014**	**2015**	**2013**	**2014**	**2015**
A	2,752,119.26	2,651,608.67	3,856,802.15	20,620,761	19,795,259	18,848,972.08	305,867.75	363,315.53	339,553.68
B	564,224,000	492,628,000	410,709,000	884,078,000	914,146,000	941,915,000	14,230,765	8,283,000	9,620,000.00
Indicator	**0.49**	**0.54**	**0.94**	**2.33**	**2.17**	**2.00**	**2.15**	**4.39**	**3.53**

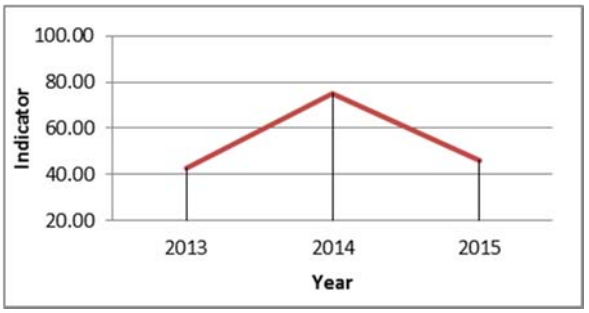


Training and awareness			
A	Nº of employees who received environmental training		
B	Nº of employees (*)		
Indicator	A/B x 100		
Year	**2013**	**2014**	**2015**
A	287	59	123
B	1,672	1,682	1697
Indicator	**17.17**	**3.50**	**7.25**

(*) Only Red Eléctrica personnel



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	**2013**	**2014**	**2015**
A	3	2	6
B	7	4	13
Indicator	**42.86**	**50.00**	**46.15**



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 2015.

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 2016.

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

DECLARACIÓN MEDIOAMBIENTAL VALIDADA POR

AENOR Asociación Española de Normalización y Certificación

DE ACUERDO CON EL REGLAMENTO (CE) Nº 1221/2009

Nº DE ACREDITACIÓN COMO VERIFICADOR MEDIOAMBIENTAL ES-V-0001

Con fecha:

Firma y sello:

Avelino BRITO MARQUINA
Director General de AENOR

ANNEX **ENVIRONMENTAL ACTIONS 2015**

Definition of Projects (Investment + Maintenance)

Environmental authorisation for **17 projects**:

Positive Environmental Impact Statement (1)
132 kV Switchyard Matas Blancas 132 kV Matas Blancas-Gran Tarajal line
220 kV Caletillas substation (Nueva Candelaria) 220/66 kV El Rosario substation (Nueva Geneto) 220 kV Caletillas-El Rosario line 220 kV Caletillas-Candelaria line 66 kV El Rosario-Geneto line
220 kV Magaña substation 220 kV Magaña-Oncala-Trébago line 220 kV Magaña-Moncayo line
Voltage change 132 kV Ibiza-Torrent 1-2 line
Modification of the 400 kV Aragón-Morella line (259-292)

(1) Authorization resulting from the complete Environmental Impact Assessment (EIA) process

Negative Environmental Impact Statement
400 kV Galapagar-Moraleja line

Environmental resolution (2)
Increasing power capacity of the 220 kV Dos Hermanas-Puerto Real line
Increasing power capacity of the 220 kV Alcores-Gazules line
Preparation de access routes to the 400 kV Almaraz-Bienvenida line Preparation de access routes to the 400 kV Almaraz-Guadame line
Increasing power capacity of the 400 kV Aragón-Peñaflor line
Modification to third parties 220 kV Asturiana del Zinc-Tabiella 1 y 2 line
Increasing power capacity of the 220 kV Gazules-Jordana line
C/220 kV Mobile GIS Monforte del Cid-Novelda-Saladas (ADIF) line
Asphalting of access to the 400/220 kV San Serván substation
Modification to third parties 220 kV Penedés-Viladecans (427-436) line
Enlargement of the 400 kV Begues substation (shunt reactor)
Partial burying of the 220 kV Rocio-Torrearenillas line (30-33)

(2) Authorisation resulting from the processing of an Environmental Document (Environmental Impact Study summary)

Projects exempt from the regulated environmental permitting process (after issuing the consultation document)
Increasing power capacity of the 220 kV La Roca-Vic line
RIP 400 kV Rubí-Vandellós line

	Letters sent	Responses obtained
Renovation and Improvement Projects (RIPs)	38	27
Optic Fibre (OF)	12	9
Modification to third parties	3	1
Asset Management (AM)	44	38
Total	**97**	**75**

Responses / Authorisations received in 2015 : Maintenance works	
RENOVATION AND IMPROVEMENT (RIP)	
66 kV Playa Blanca-Mácher line	Change of towers, insulators, glass to composite + suspension clamps + fittings
66 kV Candelaria-Cuesta de la Villa line	Strengthening of anchorage points
66 kV Corralejo-Playa Blanca line	Change of towers and insulators
66 kV Guájara/Manuel Cruz-Dique line	Change of conductors
220 kV Aubals-Escatrón line	Change of ground-wire and ground-wire fittings
220 kV Penedés-Viladecans	Change of insulators to composite, suspension clamps, fittings and shock absorbers
400 kV Rubí-Vandellos line	Bending of tower legs and adapting of tower feet.
220 kV Can Jardi-Foix line and the 220 kV Foix Manso-Figueras line	Change of insulators, fittings
220 kV Siero-Puente de San Miguel line	Replacement of towers
220 kV Escatrón-Espartal line	Replacement of conductors and insulators. Section: ECT-38
400 kV Herrera-Lomba line	Replacement ground-wire (2 wires). Ap.380-HRR
220 kV Belesar-Lomba line	Replacement ground-wire (2 wires) 3 sections. Ap. 77 - Ap. 212
220 kV Mesón do Vento-Portodemouros line	Replacement of ground-wire.
220 kV Itxaso-Orcoyen 2 line	Replacement of insulators
400 kV Garraf-Vandellos line	Replacement of worn/weathered horizontal/diagonal tower bracings and ground-wire fittings. 125-VAN
220 kV Hospitalet-Nudo Viario line	Replacement of insulator strings and fittings. Ap. 13 to HPT (20 towers)
220 kV Begues-Sant Boi line	Replacement of separators. 43-SBI
400 kV Begues-Garraf line	Replacement of ground-wire. BEG-28S
220 kV Begues-Castellbisbal line	Replacement of insulator strings and fittings. Ap. 25 to CLT (86 towers)
220 kV Begues-Castellet line	Replacement of insulator strings and fittings. Ap. 25 to CLT (86 towers)
400 kV Puerto de la Cruz-Tarifa 1 line	Installation of siliconized glass insulator strings
400 kV Puerto de la Cruz-Tarifa 2 line	Installation of siliconized glass insulator strings

Responses / Authorisations received in 2015 : Maintenance works	
220 kV Facinas-Puerto de la Cruz line	Replacement of ground-wire suspension bracings and suspension insulator strings
220 kV Arroyo Valle-Venta Inés line	Replacement of Condor conductor 377-383
220 kV Puertollano-Venta de Inés line	Replacement of glass. PLL-358B + 21 to 35.
66 kV Geneto-Tacoronte line	Replacement of insulators
220 kV Alhaurín-Jordana line	Replacement of grounding cable
OPTIC FIBRE CABLE (OF)	
66kV Corralejo-Salinas line	Hanging of fibre optic cable
66kV Guinchos-Valle line	Hanging of fibre optic cable
400kV Pierola-Vandellos line. 400 kV Rubí-Vandellos line. PIE-107	Hanging of fibre optic cable
400kV Sentmenat-Sallente line	Hanging of fibre optic cable
400kV Pierola-Vandellos line (towers 61-71+80-86)	Hanging of fibre optic cable
220kV Ausbals-Escatrón line ECT-257	Hanging of fibre optic cable
400kV Brazatortas-Valdecaballeros line Ap106-Ap242	Hanging of fibre optic cable
400 kV Guadame-Valdecaballeros line	Hanging of fibre optic cable
220 kV Tordesillas-Medina del Campo line	Hanging of fibre optic cable
ASSET MANAGEMENT (AM)	
132 kV Jaca-La Ralla line	Reduction of soil between towers 172-173 and 177-178
220 kV Adrall-Cercs line	Repair of foundations. Towers 192, 194 and 195
220 kV Anoia-Pont de Suert line	Repair of anchorage points tower 278
220 kV Anoia-Rubí line	Preparation de access routes. Towers: 281, 299, 300, 301, 302
220 kV Ascó-Ribarroja line	Preparation de access routes. Towers 3 and 6
220 kV Begues-Can Jardí line	Repair of foundations due to an embankment close to tower 15
220 kV Begues-Castellet line	Doubling of insulator strings in wooded areas for towers 67 to 71
220 kV Begues-Collblanc line	Doubling of insulator strings. Tower 47
220 kV Can Jardí-Collblanc line	Repair of foundations, tower feet and grounding connection, replacement of conductor and support bars
220 kV Castellet-Viladecans-Begues-Castellet line	Doubling of insulator strings. Towers 67 and 71
220 kV Centelles-Sentmenat line	Replacement of grounding cable, pending is the replacement of the cable in the section between towers 33 and 43 and the installation of bird-flight diverters
220 kV Eliana-Feria de Muestras line	Preparation of the land below the stretch between towers 43-44
220 kV Foix-CanJardí-Manso Figueres line	Improved grounding tower 36 and the painting of towers
220 kV Penedés-Viladecans line	Repair of foundations of tower 428 and 429
220 kV Pierola-Rubí line	Preparation de access routes. Towers: 284 and Doubling of insulator strings. Towers: 304, 303, 302, 301, 300, 299, 298, 296, 295, 292, 289, 288, 287, 286, 285, 284, 283, 282, 280, 269
220 kV Pobla-Pujalt line	Repair of foundations. Tower 176 and replacement of fibre optic cable: Pobla-133R section
220 kV Pobla-Sesué line	Change of conductors between towers 21-22
220 kV Ribarroja-Vandellós	Repair of foundations. Towers 39 and 68
220 kV Rubí-Viladecans-Sant Just-T Celsa line	Doubling of insulator strings. Towers 359, 360, 362, 365, 366, 368, 369, 370, 375, 378, 381
220 kV Rubí-Viladecans-Sant Just-Viladecans line	Change of conductors between towers 6-10
220 kV Sant Just-Santa Coloma line	Repair of banking. Tower 61
220 kV Subirats-Bellissens line	Doubling of insulator strings. Towers 487, 490 and replacement of conductor. Towers 489-499

Responses / Authorisations received in 2015 : Maintenance works	
400 kV Ascó-Pierola line	Repair of foundations. Towers 237, 239, 245 y 287, repair of banking of towers 225, 227, 228, 230, 231, 232 and 233 and cleaning/repainting of horizontal/diagonal tower bracings Tower 167
400 kV Ascó-Sentmenat line	Repair of foundations. Towers 81 and 101
400 kV Begues-Garraf line	Repair of foundations. Towers 90, 92, 97, 100, 104, 105, 108, 109 and 111
400 kV Begues-Garraf-Vandellós line	Repair of foundations (section 78bis to 111), and cleaning/repainting of horizontal/diagonal tower bracings, anchorage points (81-90), foundations (129 - 130)
400 kV El Aubals-La Selva line	Repair of foundations. Towers 269, 270, 272, 289, 307, 316, 319 and 320 and preparation de access route tower 325
400 kV Garraf-Vandellós line	Repair of foundations Tower 129. Repair of foundations Tower 143 and preparation de access route tower 178
400 kV La Plana-Vandellós line	Repair of foundations due to an embankment near to tower 334B, and cleaning/repainting of horizontal/diagonal tower bracings tower 337B and repair of foundations due to an embankment near to tower 347B
400 kV Maials-Rubí line	Preparation de access route tower 166
400 kV Pierola-Sentmenat line	Repair of foundations. Towers 21, 73, 74, 84, 90, 91, 92, 93, 94, 98, 99, Doubling of insulator strings. Towers 49, 52 and 54 and Repair of foundations. Towers 101 and 102
400 kV Pierola-Sentmenat y Pierola-Vic line	Replacement of insulators, repair of banking and replacement of support bars
400 kV Pierola-Vic line	Repair of foundations. Towers 74, 75, 76, 77, 81, 85, 86 and 87
400 kV Rubí-Begues line	Repair of foundations. Tower 28
400 kV Rubí-Vandellós line	Repair of foundations. Tower 226
400 kV Sentmenat-Sallente line	Repair of foundations. Tower 313
400 kV Soto de Ribera-Robla line	Elimination of ground-wire section 68-87 and the installation of lightning rods
400 kV Vic-Baixas line	Repair of foundations. Towers 213, 215, 218, Repair of foundations. Tower 242, replacement of support bars of tower 240 and replacement of conductor in the stretch between towers 240-243
MODIFICATION TO THIRD PARTIES	
Alternative route for the 220 kV Lubián-Puebla de Sanabria line.	

Construction or modification of facilities

❖ Protection of flora and fauna

Protection of flora: Preventive and corrective measures	
Modification of the design of the project during works	
400 kV Mezquita-Morella line	Modification of access routes to tower 42, to reduce the impact on flora. This measure is therefore covered in the INAGA supplementary report for the EIA of the line.
220 kV Torremendo-San Miguel de Salinas line	Modification of access routes to reduce the impact on flora.
400 kV I/O line Torremendo substation to the Escombreras-Rocamora line	Modification of access routes to reduce the impact on flora.
400kV Campanario-Ayora line	Modification of access routes to reduce the impact on flora.
Godelleta I/O lines (400kV Cofrentes-Eliana line, 40kV Catadau-Requena line and 220kV Catadau-Torrent line)	Modification of access routes to reduce the impact on flora.
220 kV Casillas-Lancha AC line	Prior survey undertaken at the commencement of works and drafting of an "access report" identifying needs.
220 kV Almodóvar-Casillas AC line	Prior survey undertaken at the commencement of works and drafting of an "access report" identifying needs.
220 kV Carmona-Guillena AC line	Prior survey undertaken at the commencement of works and drafting of an "access report" identifying needs.
220 kV Almodóvar-Villanueva AC line	Prior survey undertaken at the commencement of works and drafting of an "access report" identifying needs.
220 Solórzano-Cicero line	Modification of the access route to tower 3 to reduce the impact on geomorphology and flora.
400 kV Brovales-Guillena line	Modification of access routes to reduce the impact on flora.
400 kV Boimente-Pesoz line	Study and modification of access roads to the towers to reduce the impact on flora and land
	Increase in the height of lines to avoid wooded areas
	Construction of settling ponds and filters to prevent contamination of waterways.
	Increase in the height of lines to avoid wooded areas. Modification of access routes to reduce the impact on flora.
	Modification of areas for installing anchoring points to decrease the impact on hardwoods
Marking off and protection of habitats and areas with protected species	
LE 400 kV Mudejar-Morella line	Staking out of access routes and setting a boundary for the area of occupation, selection of access routes while respecting the existing tree flora
400 kV Mezquita-Morella line	The habitats of Community interest in the access routes and towers have been marked off. To date those corresponding to towers 7,9-11,23-25, 30, 54-56, 134-136.

Protection of flora: Preventive and corrective measures	
220 kV Solórzano-Cicero line	Marking off of towers 12,13,14,15 and 16 in compliance with the EIS
400 kV Boimente-Pesoz line	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.
	Conducting inventories of trees felled in the area of Asturias which is done by counting the numbers present per plot.
	Thorough monitoring of works to prevent the protected flora from being affected and controlling that the felling and pruning of flora is strictly limited to that authorised.
	Increasing the height of towers for the protection of dense vegetation for line sections T4-T5 / T69-T70 / T86/ T97-T99/ T101-T102 / T108-T109 / T111-T112 / T124-T127 / T132-T134.
400 kV Soto-Robla line	Request for action on protected flora (Firs) to the Directorate General of Natural Resources of Asturias. Site supervision to prevent any impact on them
220 kV Torremendo-San Miguel de Salinas line	Staking out of access routes and setting a boundary for access to the area and the area of occupation of the tower bases. Marking off of protected flora, extend bans on excavation surpluses in priority habitats.
400kV Campanario-Ayora line	Staking out of access routes and thoroughfares and setting a boundary for the area of occupation of the bases of the towers and the timely removal of waste (pruning and excavation surpluses).
Godelleta I/O lines (400kV Cofrentes-Eliana line, 40kV Catadau-Requena line and 220kV Catadau-Torrent line)	Staking out of access routes and thoroughfares and setting a boundary for the area of occupation of the bases of the towers and the timely removal of waste (pruning and excavation surpluses).
400 kV Brovales-Guillena line	Thorough study of the areas of action in zones with the presence of catalogued flora (T-40, T-41 and T-42). Ongoing monitoring of works to avoid impacts on protected flora/vegetation: Holm Oak (*Querqus ilex*) and controlling that the felling and pruning of flora is strictly limited to that authorized. Impact on flora: pruning of 17 Holm Oaks and 5 Olive trees in the IBA 272 Valuengo reservoir. Pruning of 1 Holm Oak in the IBA 271 Bienvenida-Usagre-Ribera del Fresno. Pruning of 69 Holm Oaks in the IBA 268 Fuente de Cantos-Montemolín. Pruning of 85 Holm Oaks and 6 Cork Oaks in the Sierra Norte Natural Park, (SAC - *Special Area Conservation* and SPA - Special Protection Area for birds) and IBA 236 Sierra Morena de Sevilla).
Hoisting/Lifting with a boom crane (*)	
400 kV Mudejar-Morella line	65 of the towers hoisted with a boom crane
400 kV Mezquita-Morella line	35 towers were hoisted with a boom crane. This represents 27% of the towers hoisted to date.
220 kV Solórzano-Cicero line	Hoisting with a boom crane of all the towers of the line
400 kV Boimente-Pesoz line	Hoisting with boom crane of those towers that have access via difficult terrain and the use of a normal crane represents opening up access routes that would have a huge environmental impact. 96 towers have been lifted by a boom crane, representing 61% of total number of towers (158).

Protection of flora: Preventive and corrective measures	
220 kV Torremendo-San Miguel de Salinas line	It is planned to hoist those towers located in priority habitats with a boom crane or small truck with a crane (T5-T11, T12-T16 and T21-T26)
400kV Campanario-Ayora line	A boom crane will be used for lifting of the entire length of the line.
Godelleta I/O lines (400kV Cof-Eliana line, 40kV Catadau-Requena line and 220kV Catadau-Torrent line)	The Godelleta in and out lines will be lifted via a boom crane (400kV Cofrentes-Eliana line, 400kV Catadau-Requena line and 220kV Catadau-Torrent line).
400 kV Brovales- Guillena line	87% of the towers hoisted with a boom crane. Hoisting with this method has noticeably reduced the affect and damage on flora.
220 kV I/O line Gavarrot substation from the 220 kV Begues-Sant Boi line.	Use of a boom crane to minimise the need for tree felling for tower 57.1
Concreting works, lifting and hanging by helicopter (*)	
220 kV Solórzano-Cicero line	Stretches T13-T14 and T18-T19 hung with a DRONE
400 kV Boimente-Pesoz line	Hoisting with a helicopter of towers 137, 138, 150, 151 and 152.
	The entire length of the line hung by helicopter for each of the sections into which it is divided.
	Concreting works with the aid of a helicopter for towers 109- 137-139-151-152 and 153
Hanging lines by hand	
400 kV Mezquita-Morella line	Sections 65-79 and 138-147.
220 kV Solórzano-Cicero line	Sections T1-T13
220 kV Torremendo-San Miguel de Salinas line	It is planned to hang by hand line for those towers located in priority habitats (T5-T11, T12-T16 y T21-T26)
Godelleta I/O lines (400kV Cofrentes-Eliana line, 40kV Catadau-Requena line and 220kV Catadau-Torrent line)	In sections with a ravine the cable will be hung by hand.
400 kV Brovales-Guillena line	Stringing of the pilot cable has been carried out without the use of mechanical resources that could damage areas of archaeological interest, natural vegetation or crops.
Planting of trees	
Cañuelo Substation	Sowing of seeds of native tree species within the substation perimeter in areas lacking vegetation (vegetation screen on the Eastern side of the substation). As an offsetting measure, trees and shrubs will be planted in the Guadarranque Park in Guadacorte (a borough belonging to the municipality of Los Barrios in the province of Cádiz).
	Wild Olive and Common Dogwood trees transplanted to an area agreed with the local council in the same plot of land of the works.
400 kV I/O Solórzano line	Oaks and Holm oaks transplanted in work site A-39 (5 trees).
220 kV Solórzano-Cicero line	Access to tower 3. Replacement of trees felled due to construction and the addition of an extra 20% in case any of them don´t take hold.
Valdecarretas Substation	The planting of rosemary and thyme at the top of the embankment slopes which are located on the exterior of the substation as well as the installation of coconut meshing and hydro-sowing activities.

Protection of flora: Preventive and corrective measures	
400 kV Mudarra-San Sebastián Reyes line (reconditioning of access roads)	Accompanying measure not related to felling: planting 12 willow trees, size ranging between 1.60 to 1.80 metres tall, in four different areas close to the forest track.
132 kV Mallorca –Ibiza interconnection line	Removal of healthy carob trees during the execution of the trench system for the interconnection between Majorca and Ibiza. These tress were transplanted. • This shall be carried out taking into account the orientation of the tree's base and preserving as many roots as possible. • Prior to replanting in soil, all injuries produced by root cutting or transporting should be treated with tree wound dressing. • The tree's base shall be watered during 12 months. During the first three months, irrigation shall be every two weeks and once a month during the following nine months. In the months of July and August irrigation shall be every two weeks regardless of the time gone by since the planting took place.

(*) Although they have been classified as measures for the protection of flora/vegetation, in general they prevent impacts on the land, waterways and other elements.

Protection of flora: Preventive and corrective measures	
Biological stoppage	
Modification of 400 kV Penagos-Gueñes line (Ap.126-Ap.147)	Egyptian Vultures and Raptors: 15 February to 1 September between towers T134 to T142; European mink, and aquatic species: 15 March to 31 July between towers T132-T133 and T142-T143
400 kV Mezquita-Morella line	2 areas with biological stoppage Golden Eagle and Bonelli's Eagle: January 1 to June 30 between Towers 140-145. Dupont's Lark: March 1-June 30 between the Towers 66-77.
400 kV Brovales- Guillena line	• Towers 71 to 83 due to the presence of Steppe birds 15 March to 15 July. • 132 to 134 due to being the nesting grounds of Black stork (Ciconia nigra) from 1 March to 15 July. • 151 to 152 due to the presence of Golden Eagle (*Aquila chrysaetos*) and Black Stork (*Ciconia nigra*) from 1 March to 15 July. • 157 to 184 due to the presence of Golden Eagle (*Aquila chrysaetos*) from 1 January to 31 July. • 185, due to the presence of Golden Eagle (*Aquila chrysaetos*) and Black Stork (*Ciconia nigra*) from 1 January to 5 July. • 186 due to the presence of Black Stork (*Ciconia nigra*) from 1 April to 5 July. • 187 to 188, due to the presence of Black Stork (*Ciconia nigra*) from 1 April to 23 August. • 189 to 191 due to the presence of Black Stork (*Ciconia nigra*) from 1 April to 5 July. • 192 to 196 due to the presence of Black Stork (*Ciconia nigra*) from 1 April to 23 August
400 kV Boimente-Pesoz line	Biological stoppage from 1 May to 31 August. Marking of accesses and limiting access zones.
	Works stoppage on span 137-139 from April to September due to a pair of nesting Egyptian vultures.

Protection of flora: Preventive and corrective measures	
400 kV I/O line from the Torremendo substation to Escombreras-Rocamora line	Biological stoppage from 1 March to 15 July from Towers 105.N to 105.5 (the entire lien)
Godelleta I/O lines (400kV Cofrentes-Eliana line, 40kV Catadau-Requena line and 220kV Catadau-Torrent line)	Biological stoppage from April to July due to nesting activity in the following towers: - 400kV COF-ELIANA line(STRETCH 1-2), 400kV CAT-EQUE line (STRETCH 13-14 and STRETCH 25-26) and the 220kV Catadau-Torrente line (STRETCH 8-9 and STRETCH 20-21). All lines will be marked with bird-saving devices.
132 Kv Mallorca –Ibiza interconnection line	In coastal and marine areas, in order to minimise impacts on wildlife, fishery and tourism activities, all works between 15 March and 15 October will not be carried out below 100 metres bathymetry. For the rest of the areas, the works will not be carried out between 15 April and 15 October.
66 kV Alcudia -San Martí line	Biological and touristic stoppage from 15 October to 15 March.
RIP Replacement of towers in the 66 kV Salinas - Gran Tarajal line	Limitation of works outside breeding season of most representative species (Houbara bustard, Egyptian vulture, Raven, etc), only between the months of July to December.
RIP Replacement of towers in the 66 kV Playa Blanca – Mácher line	Limitation of works outside breeding season of most representative species (Houbara bustard, Egyptian vulture, Raven, etc), only between the months of July to December.
Installing of nests	
According to EIA - Pinilla-Campanario-Ayora-Cofrentes Line: Construction of a special building for Kestrels to nest safely in the municipality of Ayora,	
Installing of bird-saving devices	
During 2015, 189 km of line was marked from a total of 289 km of newly constructed line (32 km in SPAs, 68.15 km within other protection areas for birds representing **65.05%** of the lines built	

❖ Socio-economic and landscape scope

Protection measures of the socio-economic scope	
Modification of the project design during the construction works	
400 kV Mezquita-Morella line	Modification of the location of towers 152, and 159 to maintain a greater distance to cattle thoroughfares. Modification of Tower 156 in 40 metres to avoid impact on national heritage.
400 kV Boimente-Pesoz line	Relocation and modification of the height of towers 60 and 61 in order to respect a mound, according with Cultural guidelines of the Regional Government of Galicia (Xunta).
	Modification of 39 access routes.
400 kV Ludrio substation	Modification of access route and substation drainage.
400 kV Grado substation	Construction of a riprap drainage system on a slope at the beginning of the access road with a metal closure at the top. Installation of drainage at the beginning of the access with a metal grille, gravel and a collection pit at the exit.
400 kV Valdecarretas substation	Modifying the substation drainage.
Hoisting with boom crane	
400 kV Brovales-Guillena line	87% of the towers were hoisted with a boom crane. When hoisting in this way damage caused to roads and areas surrounding the towers is reduced..
400 KV Boimente-Pesoz line	96 towers were hoisted using a boom crane, representing 61% of the overall total towers (158)
	The following towers were hoisted using a helicopter: 137, 138, 150, 151 and 152.
220 kV Torremendo-San Miguel de Salinas line	It is foreseen to construct towers (T5-T11, T12-T16 y T21-T26) using either a boom crane or a small crane as they are located in priority habitats.
400kV Campanario-Ayora line	All towers of the line will be hoisted using a boom crane.
Godelleta I/O lines (400kV Cofrentes-Eliana line, 40kV Catadau-Requena line and 220kV Catadau-Torrent line)	All towers of the different lines have been or will be hoisted using a boom crane.
Stringing by helicopter	
400 KV Boimente-Pesoz line	All stretches of the line (in each of the sections in which it is divided) were stringed using a helicopter.
Other	
400 kV Mudejar- Morella line	Opening of a new forest track in order to connect two valleys in the vicinity of A-45. Done at the request of Forestry Agents.
400 KV Solórzano I/O line	At the request of the owner, topsoil was supplied to the plot of land affected by the A-39-1 for ground levelling and improving pastureland.
220 kV Fuendetodos-María line	Felling, pruning and clearing works have been conducted during the development of the EMP below spans 25-26, 38-39 and 62-63 for fire protection.
220 kV Solórzano-Cicero line	Restoring the natural spring fountains located in El Escobal, Los Llanos and El Suto in the Riaño neighbourhood, Solórzano.
220 kV Siero-Puentes de San Miguel 1 line	Archaeological supervision of the works conducted on tower 167 (presence of Lithic material in San Martín de Bada).

Protection measures of the socio-economic scope	
400kV Godelleta substation	In order to control the emission of dust into the atmosphere, the periodic spraying of water will be carried out.

❖ Landscape restoration

Landscape restoration	
Substations under construction	
400/220kV Godelleta substation	Affected areas were restored respecting their integration into the natural surroundings. The design and the colour coating of the substation to match the surroundings, as well as the planting of fruit trees within the substation perimeter.
400/220 KV Torremendo substation	Fixing slopes by means of coconut meshing and trinter meshing in order to prevent erosion. Replanting of the flat lands with native vegetation (black hawthorn, saltwort and thymus).
Cañuelo substation	• Topsoil is added to embankment slopes along with the fixing of the slopes using coconut meshing and hydro-sowing activities. • Sowing seed and hydro-sowing is conducted on the slope of the Eastern embankment. Sowing of seed of native tree species within the substation perimeter in areas lacking vegetation (vegetation screen on the Eastern side of the substation). • Planting of trees and shrubs in the Guadarranque Park in Guadacorte (a borough belonging to the municipality of Los Barrios in the province of Cádiz).
Valdecarretas substation	The planting of rosemary and thyme at the top of the embankment slopes which are located on the exterior of the substation as well as the installation of coconut meshing and hydro-sowing activities.
220kV Santa Ponsa Converter Station and 220/132/66 kV Santa Ponsa substation	Improvement of the landscaping and of the visual shielding by recovering damaged tree bases and by including a row of pine trees as a visual shield. Landscape designing for the access area of the converter substation and implementation of a drip irrigation system.
Lines under construction	
400 kV Mudejar-Morella line (LE)	Landscape integration favouring the replanting of flora native to the surroundings of the electricity line.
Modification to the 400 kV Penagos-Gueñes line (Ap.126-Ap.147)	Hydro-sowing on the embankment slopes in the access to tower 127 (1 km in length approximately).
220 kV Solórzano-Cicero line	Aesthetic and landscape integration of all surfaces affected, particularly towers 1, 2, 3, 5, 6, 8, 10, 13, 14, 15, 16, 17, 22 and 23.
220 KV Cañuelo-Los Barrios line	Hydro-sowing activities for towers 1, 2 and 3 will be conducted.

Landscape restoration	
400 kV Bescanó-Santa Llogaia line	Hydro-sowing on platforms and slopes (6,000 sq. metres) and the planting of climbing plants on slopes (450 plants).
400 KV Boimente-Pesoz line	Geomorphological recovery of the ground, removal of surplus material and transportation to landfill, the sowing of seed, restoration of roads, opening water culverts and restoration of stone walls. Adaptation of the slopes generated in access to the platform of tower 145 and to the platform of tower 35 by means of the installation of coconut meshing, supply of topsoil and sowing of grass seed. Restoration of tower access paths and platforms once the cable stringing of each section is completed.
Lines undergoing maintenance	
220 kV Siero-Puente de San Miguel 1 line	Plants, topsoil and fertilizers have been provided for the following towers: 234, 241, 249, 287, 288, 289, 290 In the following towers scarifying has taken place, the sowing of seed and the incorporation of fertilizer: 236, 238, 239, 240, 247, 248, 250, 251, 254, 255, 257, 258, 286,
400 kV Almaraz-San Serván line	In tower 25 seeding and manual seeding has been performed in areas without any vegetation.
400 kV San Serván-Brovales line	Hydro-sowing of the access slopes and platforms was conducted for towers 77, 88, 90 and 91.

❖ Archaeological heritage

Protection of archaeological – ethnological heritage	
400 kV Mezquita-Morella line	Discovery of the remains of a Roman road and of two trenches from the Spanish Civil War. None of them have been affected. The tower concerned has been relocated 40 metres in order to prevent damage to the Roman road. The trenches have been marked off and protected in order to prevent damage.
400 kV Brovales-Guillena line	Continuous monitoring during the civil works stage was conducted due to the existence of an ethnographic element (livestock pen) a few meters from one of the legs of a tower. Continuous archaeological monitoring during civil works was conducted due to the existence of ethnographic elements (huts) because near the access paths and the towers. Preventive staking of an existing Roman road near the access to the tower, of the existing plot near the access to the tower, a livestock pen, a rectangular stone pig corral and a hut(rectangular in structure) near the access to the tower. Marking off of an existing tower platform and extensive monitoring during the civil works stage. In no case were there any impacts on any of the ethnographic elements mentioned.
220 kV Andújar-Guadame line	The discovery of several objects pertaining to the Roman period in towers 6, 7 and 8. Tower 7 was removed due to the discovery of a Roman forge and therefore becoming impossible to install. Tower 8 had to be moved 40 metres approximately since a Roman paved road and Roman houses were found, and a wall and several pots from the Bronze Age were discovered in that area, which were later removed. The height of towers 6 and 8 was increased because of this new span of line.
132 kV interconnection line Majorca -Ibiza	More than 10 archaeological sites. Archaeological supervision, marking off and archaeological field survey. Horizontal drilling in order to avoid an archaeological site. Modification of the original layout to avoid several archaeological sites.
66 kV Alcudia -San Martí line	Two archaeological sites. Archaeological supervision, marking off and archaeological field survey. The impact is avoided by laying the line below the archaeological finds.
Torrent substation	Archaeological supervision, marking off and archaeological field survey. Modification of the project in order to avoid impacts on the archaeological site. Setting up a restricted area for sites. Relocation of the discovered burial sites in order to avoid impacts.

❖ Restoration of affected areas

Restoration of areas affected by works	
Restoration of areas affected by works	
400 kV Mudejar-Morella line	Report on the restoration of affected areas (platforms and accesses) has been drafted. Pending the right season of the year in order to carry out the works (spring-autumn).
Modification to the 400 kV Penagos-Gueñes line (Ap.126-Ap.147)	Recovery of 24 km of main forest tracks in the municipalities of Güeñes and Galdames.
220 kV Solórzano-Cicero line	Recovery of work sites and access paths, areas used by overhead line stringing machinery as well as areas used by machinery for fixing anchorage points.
400 kV Boimente-Pesoz line, **I/O Luengos line with the 400 kV Mudarra-Robla line** **400 kV Pola de Gordón I/O line for the 400 KV Lada –Robla line,** **220 kV Castrelo-Pazos line,** **220 kV Portodemouros-Tibo line** **220 kV Belesar-Chantada line** **400 kV Lada-Robla line,** **220 kV Siero-PSM 1** **220 kV Asturiana de Zinc-Tabiella line** **220 kV Mesón do Vento-Portodemouros line** **400 kV Soto-Robla line**	Geomorphological restoration, removal of excess materials to landfill sites, sowing of seed, repair of roads, opening up of water culverts and stone walls.
Torremendo substation	Restoration project for the plot in which the Torremendo substation is located has been submitted.
Godelleta 400kV substation	Topsoil for substation slopes restoration has been stored.
400 kV Brovales-Guillena line	Landscape restoration actions have been undertaken for towers 151, 152 and 173.
220 kV Casillas-Lancha line (increase in power capacity)	Enclosure repair works and soil restoration after installing the additional tower for the stringing of electricity lines next to 11B.
220 kV Carmona-Guillena line	Ground levelling for irrigation by gravity in the surrounding area of tower 11 at the request of the plot's owner.
Underground stretch of the 220 Cañuelo-Los Barrios line	Repair of the damages caused to a local road as a result of an underground electricity line that crosses it.
132 kV Majorca –Ibiza interconnection line	Beach works: consisting of sand removal, protection by means of protection barriers (1 metre high) along the artificial dune which was created, and the addition of a top layer sand to return the sand to its original state, as well as raking until sand obtains the same texture as at the beginning of the process. Stream restoration: All elements of the riverbed affected by the execution of works (screeds, wing walls, parapets, etc ...) have been replaced; following completion of these works, clearing of the riverbed section affected will be carried out. Once the works are finished, the morphology and the original flora of the riverbed and of the riverbanks are restored with native species whenever the riverbeds and riverbanks substratum need to be modified.

Restoration of areas affected by works	
	Limonium Magallufianum inventory in marl and loamy soil (in Majorca – land section) has been carried out.

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