

ENVIRONMENTAL COMMITTMENT

2013



RED ELÉCTRICA DE ESPAÑA



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Access more detailed information that may be of interest using web links



More information
in the Corporate
Responsibility
Report 2013



This document is a summary of Red Eléctrica's environmental commitment and performance during 2013.

All Red Eléctrica activities are carried out in compliance with a strict environmental policy and from a position of maximum respect for the natural environment. To ensure this, the Company has an environmental management system certified according to the ISO 14001 standard.

In order to make its environmental commitment known, Red Eléctrica drafts an annual Corporate Responsibility report as a means of dissemination of the Company's performance and results regarding corporate responsibility in the economic, social and environmental aspects.

Moreover, also on an annual basis, Red Eléctrica publishes an annual Environmental Statement in which all the environmental aspects arising from its activities are identified and assessed, in accordance with the requirements of the Community Eco-Management and Audit Scheme (EMAS).

This publication contains a summary of the main environmental aspects included in both the aforementioned documents.

EMAS
environmental
statement 2013



MEMBER OF
**Dow Jones
Sustainability Indices**
In Collaboration with RobecoSAM



Table of contents

I01	Our environmental responsibility	4
I02	Committed to the conservation of biodiversity	7
I03	We protect the socio-economic environment and the landscape	13
I04	We fight against climate change	14

Our environmental responsibility

Respect for the natural environment, conservation of biodiversity and the implementation of best environmental practices in the execution of our activities, are key elements of our business management.



Red Eléctrica makes a significant effort to avoid or minimise those aspects arising from its activities that may produce some kind of impact on the environment.

Within the framework of our environmental policy and environmental management system, all activities performed by Red Eléctrica are assessed from an environmental point of view, and improvement actions and measures are defined as necessary in order to conserve the natural environment in which these activities are carried out.

In order to carry out an on-going improvement of our environmental performance, Red Eléctrica annually defines an environmental programme in which the various objectives derived from the different Company strategies are established and specific work actions are defined.

95 out of 100 points,
granted in the Environmental
Management category by the
Dow Jones Sustainability Index
in the 2013 assessment.

Environmental responsibility

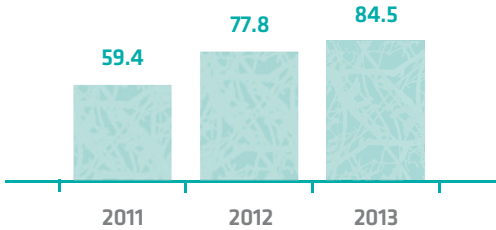
- ISO 14001 Certification.
- Registered in EMAS (Community Eco-Management and Audit Scheme).
- 84.5%, level of fulfilment of the annual environmental programme.
- 23.4 million euros allocated to environmental management.

More information
in the "Environment"
section of the
corporate website



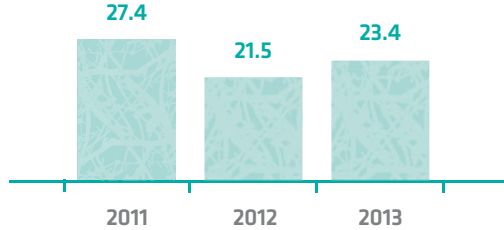
Fulfilment of the environmental programme

(%)



Environmental expenditure

(€ Million)



Key environmental performance indicators

	2011	2012	2013
Km of line in Red Natura/total km of line (%)	15.4	15.0	15.2
Km of lines marked with bird-flight diverters	1,931	2,330	2,585
Km of line marked in SPAs/total km of line in SPAs (%)	18.16	18.44	19.0
Average SF ₆ emission rate	1.16	0.99	0.98
Direct emissions (t of CO ₂ equivalent)	68,304	77,355	79,610
Indirect emissions (t of CO ₂ equivalent)	804,814	880,011	752,578
Non-hazardous waste (t)	782.8	1,531.0	2,180.0
Hazardous waste (t)	2,016.7	2,052.3	2,170.0
Environmental expenditure (€ million)	27.4	21.5	23.4

AWARDS AND RECOGNITIONS

- Red Eléctrica was included in the Natural Capital Leaders Index developed by the GreenBiz Group and Trucost plc.

This index recognises companies that demonstrate leadership in terms of natural capital and are pioneers in decoupling economic growth from the impact on natural capital.

Red Eléctrica was selected as a Leader in Natural Capital Efficiency in the energy sector, and is the only Spanish company listed in the index in the 2013 Edition.

- Red Eléctrica was granted the award for Business Commitment in the inaugural edition of the Biodiversity Conservation Awards run by the Government of Valencia.

We apply best environmental management practices

The main environmental impacts of the activity we carry out are related to the territory in which our facilities are located and the landscape through which the electricity grid infrastructure crosses.

To minimize the possible effects arising from the new installations, we conduct a study of the territory and also head coordination with stakeholders to define and agree on the locations of substations and power line corridors, applying strict environmental criteria in all development phases of the electricity transmission grid.

Once the projects and the preventive & corrective measures are defined, intensive environmental monitoring is carried out to verify the compliance of these measures. The most significant data for 2013 is:

- **Project:** environmental permitting processes initiated for 14 projects and completed (with environmental authorisation) for 33 projects.
- **Construction:** environmental monitoring of 97.5% of the work in substations and 100% of the work on lines.
- **Maintenance:** 26 environmental monitoring programmes (1,121 km of line and 7 substations) and environmental monitoring of 106 substations.



Main measures applied in the development of facilities

Preventive measures

- Hoisting of towers with boom crane/helicopter
- Hanging of lines by hand/helicopter
- Installation of bird-saving spirals
- Archaeological survey
- Relocating of nests
- Biological stoppages
- Signage/markings off of habitats
- Increasing height of towers
- Storage of topsoil

Corrective measures

- Landscaping actions
- Relocating of flora species
- Regeneration of pathways
- Forest repopulation
- Restoration of slopes by use of hydro-seeding and topsoil

In 2013, a system for the personal accreditation of external environmental supervisors who monitor works was launched, with the aim of ensuring they are fully aware of our environmental criteria and that they meet certain requirements. This year has seen the accreditation of the first 40 supervisors.


Committed to the conservation of biodiversity

Red Eléctrica sets out its commitment to biodiversity in its environmental policy, in its biodiversity strategy and in the many actions that it carries out in this field.



During 2013, this commitment has been strengthened by the signing of the Biodiversity Pact. By means of this engagement, Red Eléctrica adheres to the Spanish “Business and Biodiversity” Initiative, promoted by the Ministry of Agriculture, Food and Environment, which aims to include the conservation and management of biodiversity in the business strategies of companies.

The key criteria when defining the location of new Red Eléctrica facilities is to avoid those areas rich in biodiversity. However, when it is inevitable that they cross or be located in protected spaces or in areas with species of interest, Red Eléctrica puts into motion all the necessary preventive and corrective measures to minimise the possible effects on flora and fauna, and provides additional environmental improvement actions to boost the biodiversity of the areas in which their facilities are located.

 **More information** in the “Biodiversity” section of the corporate website.

Biodiversity conservation

- **Signing of the Biodiversity Pact (Spanish “Business and Biodiversity” Initiative).**
- **€980,000 allocated to collaboration agreements for fire prevention and the fight against forest fires.**
- **Development of R&D+i projects for the protection of fauna and vegetation.**
- **2,585 km of lines marked with bird-flight diverters.**

99 out of 100 points, granted in the Biodiversity category by the Dow Jones Sustainability Index in the 2013 assessment.

The main lines of action in this field are the following:

- **Avoid areas rich in biodiversity** when deciding the location of new electricity transmission facilities and infrastructures. Approximately 25% of the Spanish territory is Red Natura (Natura 2000 Network) and currently only 0.12% of the total surface area of these protected spaces is occupied by Red Eléctrica facilities.
- **Protect habitats and species** by establishing numerous measures to minimize the alteration of the habitat of certain species of fauna and flora.
- **Prevent the risk of collision of birds** with the ground wires that protect power lines against electrical discharges (lightning) during storms. To

do this, the ground wires are marked/fitted with devices that increase their visibility. In 2013, 362 km of lines were marked.

- **Fire prevention** through the adequate definition of electricity line safety corridors, the application of more advanced techniques regarding maintenance, collaboration with public administrations, development of research projects and carrying out actions to raise awareness on the matter.
- **Contribute to conservation of biodiversity**, leading or actively participating in various projects aimed at caring for and protecting biodiversity.

In 2013, amongst the measures applied for the protection of habitats and species, and as matter of example, the following measures are noteworthy in the construction of the ALMARAZ-GUILLENA AXIS:

- Hanging the pilot cable (142 km) by hand to avoid damage arising from the use of vehicles.
 - Carrying out birdlife census in winter, pre-reproductive and reproductive periods
 - Thorough monitoring of birds in the migratory, pre-migratory and wintering seasons
 - Biological stoppages of works in 78 towers during different periods between 1 January and 23 August.
 - Recovery and restoration of all areas affected by the works performed.
 - Comprehensive field survey of work areas in zones where there is a presence of catalogued flora and on-going monitoring of works to prevent impacts on vegetation.
 - Increasing the height of the towers to avoid felling of wooded areas.
 - Signage and marking off of accesses and work areas that are near catalogued or endangered flora populations.
 - Hoisting of 62% of the towers with boom crane (method which minimizes the need to open access roads and work sites).
-

Birdlife protection project

Identification, characterisation and mapping of the routes and flight paths of birds that interact with high voltage power transmission lines (2010-2014).

Objective: To design a tool to use as a source of information in the planning and design stages of grid facilities and to define line marking programmes for the existing grid.

- Collection and standardization of existing information a total of 44 focal species selected according to their level of endangerment and their sensitivity to power lines.
- Drafting of bird sensitivity maps and their integration into a nationwide geographic information system.

- As at December 2013, this project had been completed for seven autonomous communities and the target for 2014 is to complete it for the remaining autonomous communities.

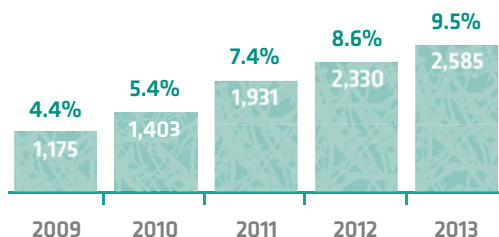


Recovery of the dunes system of the Ses Salines beach

As part of this project, in addition to recovering the area affected by the works for the replacement of the cable of the Formentera-San Jorge 2 Line, also the beach-dune system of the Llevant area was regenerated, the protected area of the beach in Formentera was enlarged and 60,000 protected plant species native to dune systems were planted.

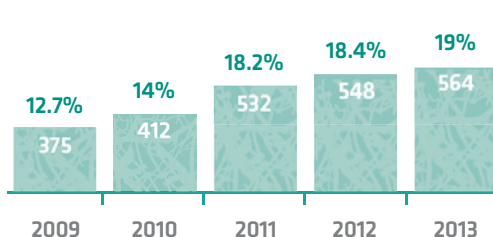
Marking of lines with bird flight diverters (km)

Percentage over total lines.
Spanish peninsula data.



Marking of lines in SPAs with bird flight diverters (km)

Percentage over total lines in SPAs.
Spanish peninsula data.



The “Red Eléctrica Forest”

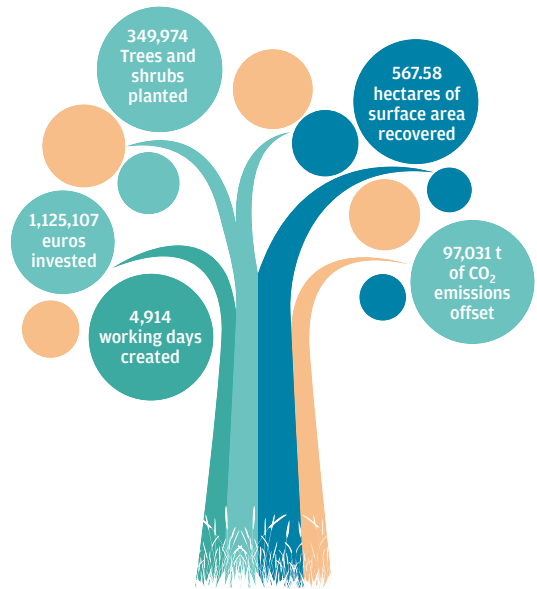
We began the “Red Eléctrica Forest” in 2009 as a project aimed at contributing to the fight against climate change through the planting of trees and, at the same time, to the conservation of a biodiversity-rich area or the recovery of a deteriorated natural area.


Annually, we help create a forest on public lands in a different area of the Spanish territory and contribute, by means of this initiative, to the development of local economies, as the reforestation works are contracted out to local companies or organisations of the area.



The “Red Eléctrica Forest” project (2009-2013) figures

By means of this project we offset part of our direct CO2 emissions (39% in 2013).



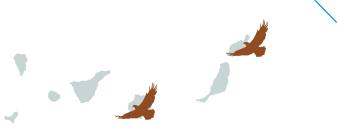
More information
in the video
“Red Eléctrica
Forest” 
















Map of Red Eléctrica projects for the conservation of biodiversity

We lead or actively participate in various projects aimed at biodiversity conservation.

To learn more about the individual projects see “Map of projects” in the “The Natural Environment” section of the corporate website.



- | | | | |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|  Protection of birdlife |  Birds of prey |  Steppe birds |  Necrophagous birds |
|  Wading birds |  Other birds |  Aquatic fauna |  Other fauna |
|  Prevention of forest fires |  Protection of vegetation |  Aquatic vegetation |  REE Forest project |
|  Environmental awareness | | | |

Research and innovation projects

Red Eléctrica's commitment to biodiversity goes beyond reducing the effects and impacts generated by their activities. To this end, we carry out various research and innovation projects aimed at the conservation of the natural environment, among which the following are noteworthy:


Vegetation/Flora

- **“Modelling of the growth of forest masses” (2010-2013) project.** Development of a forest growth simulation model to prevent possible incidents with high voltage lines.
- **Monitoring system for forest fires in lines (2013-2014).** Development of an autonomous system for the detection of forest fires in the vicinity of high voltage overhead lines.

- **Use of seeds and fragments of Posidonia oceanica (2013-2016).** Development of a technique to reduce the impact caused by the laying of submarine electricity cables in Posidonia oceanica seagrass meadows by the replanting of laboratory-germinated seeds of this species and fragments of this species obtained as a result of natural fragmentation.

Birdlife

- **Design of a collision detector prototype (2008-2013).** Development of a collision detection device which, once installed on electricity grounding cables, allows bird collisions with the cable to be detected and sends a signal to a mobile device allowing the accident to be communicated in real time.

More information
in the “Birds”
section of the
corporate website 



We protect the socio-economic environment and the landscape

The presence of electricity infrastructures may have some effects of a social nature, but in no case represent a significant alteration in the way of life of the affected communities.



From the outset of the design phase

associated to new electricity infrastructures, all social aspects are taken into account and, once analysed, are integrated into the Environmental Impact Study (EIS). Noteworthy among the factors taken into consideration are: touristic and cultural resources, the landscape, areas of high agricultural yields and agroforestry.

Reducing the visual impact of facilities

Amongst the measures carried out, noteworthy is the restoration of affected areas and the landscape integration of substation buildings. In 2013, six specific projects for the integration of substations into the landscape were carried out.

Archaeological supervision

Before any construction work can begin for new facilities, an archaeological survey is performed. The intensity and scope of the survey are based on the probability that archaeological remains of interest may exist.

Electric and magnetic fields

Thanks to the preventive measures that are applied in the design of the facilities, the levels of electric and magnetic fields stay below levels recommended by the European Union.

Protection of the socio-economic environment and the landscape

- Design of different models of buildings according to the environment in which they are located, taking into account the European Landscape Convention.
- Archaeological supervision in the construction of 15 lines and 6 substations in 2013.
- Improvement and adaptation of tools for calculating the values of the electric and magnetic field created by facilities.

We fight against climate change

Red Eléctrica has a specific climate change strategy in place that has an action plan associated to it which sets out the objectives and specific actions to be carried out in the coming years.

In its role as sole transmission agent and operator of the system, Red Eléctrica is a cornerstone in the move towards a more sustainable energy model.

In this regard, it is contributing to the achievement of the 20-20-20 European sustainability targets through the integration of renewable energy and by carrying out activities aimed at increasing the energy efficiency of the electricity system.

In addition, Red Eléctrica has undertaken the commitment to work on reducing their greenhouse gas emissions.

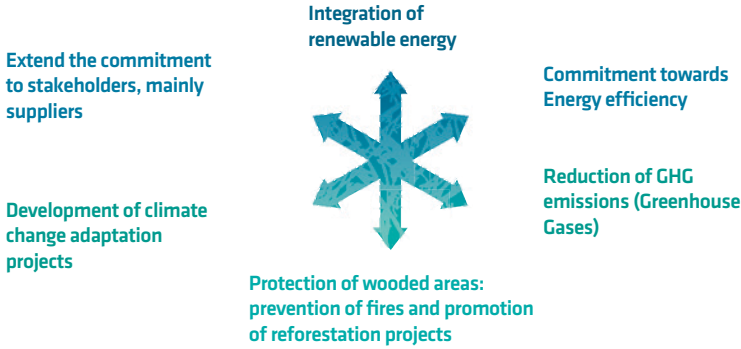
Some of the actions are carried out under the Red Eléctrica eficiente brand, which encompasses all those actions that promote a better use of energy and resources.

The fight against climate change

- 42% of the electricity demand on the Spanish peninsula met with renewable energies.
- Decrease in the SF₆ emission rate through the installation of equipment with a lower leakage rate.
- Reduction of 21.6% of electricity consumption for lighting at the Head Office of the Group over the last three years.
- Offsetting of 39% of direct CO₂ emissions in 2013 through the Red Eléctrica Forest project.



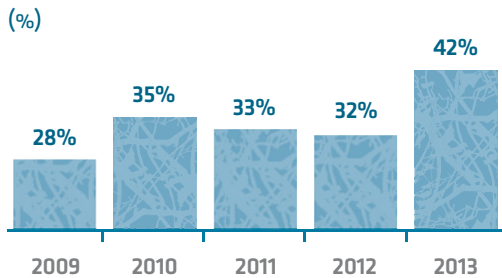
Axes of the climate change strategy



Integration of renewable energy

The development of electricity transmission grids and the implementation of system operation solutions geared towards the integration and better use of renewable energy are essential to the achievement of the European climate targets.

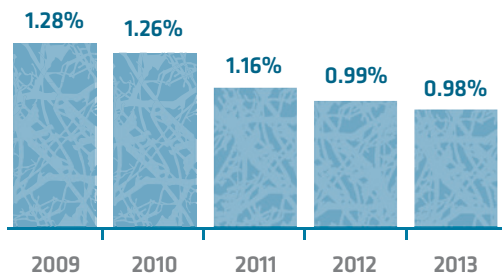
Demand covered by renewable energy



More than a third of the peninsular demand has been met using renewable energies in recent years.

SF₆ emission rate

(% of emissions/installed gas)



Reduction of emissions

The main direct emissions derived from Red Eléctrica's activities are those coming from sulphur hexafluoride (SF₆), 98% of total direct emissions calculated in terms of CO₂. Therefore we continue to work on finding solutions for the control and reduction of emissions of this gas.



Energy efficiency

Red Eléctrica works in this field from two converging perspectives. The first is focused on the implementation of various demand-side management measures aimed at providing greater flexibility to the operation of the system. The second is geared towards promoting energy efficiency within the Company and reducing the Company's carbon footprint.

Offsetting emissions

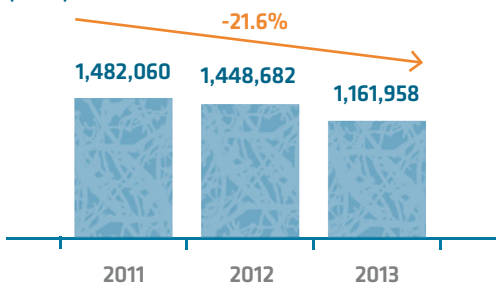
Within the climate change action plan, we have established a goal to offset at least 20% of our direct emissions. In this regard, Red Eléctrica offsets their emissions mainly through the Red Eléctrica Forest project.

Protection of Woodland

Aware of the importance of woodland as CO₂ carbon sinks, we minimise the loss of wooded areas associated with the construction and expansion of electricity grids, we optimise the maintenance of safety corridors of electricity lines with the aim of preventing forest fires and we carry out reforestation projects.

Lighting consumption at the Head offices

(kWh)



Carbon footprint in the value chain

For the second year running, Red Eléctrica has worked on measuring the carbon footprint associated with their value chain. During 2013, the Company has focused specifically on the top ten suppliers that have the most impact on our indirect emissions.

More information
in the "Environment"
section of the
corporate website





Red Eléctrica works on selecting the most legible typographical font for their publications.

The typographical font Amplitude and Klavika have been used for the texts and graphics in this report.

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