



Environmental report  
2006



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# Summary

## Presentation

- 1. Who RED ELÉCTRICA is / 6
- 2. Environmental policy / 10
- 3. Environmental behaviour indicators / 14
- 4. Objectives / 18
- 5. Environmental activities / 22
  - 5.1 Environmental activities in facilities being planned / 25
  - 5.2 Environmental activities in facilities under construction / 26
  - 5.3 Environmental activities in facilities in operation / 34
  - 5.4 Consumption of natural resources / 40
    - 5.5 Waste / 44
    - 5.6 Environmental accidents / 47
- 6. Research & development / 50
- 7. Training & awareness / 60
- 8. Communication / 64
- 9. Collaborators / 74
- 10. Fines / 78
- 11. Environmental costs / 82
- 12. Environmental declaration frequency / 86
- 13. Glossary of terms / 90
- Validation / 96





# Presentation

We at Red Eléctrica have always believed in sustainable development. In addition to maintaining the balance of the electrical system and constructing a transmission network that will help to achieve Spain's development, we are also responsible for striking a balance between business efficiency and showing respect for and protecting nature and taking care of our natural habitat. Not only making the most of our investments, but also thinking about the future of our children and grandchildren. We are a responsible company in the widest sense of the word.

Spanish society has made a firm commitment to renewable energies, and the obligation of Red Eléctrica is to rise to that challenge. Our company takes care of operating the electrical system, i.e., maintaining the necessary balance between electricity production and consumption, and we have made a great effort to ensure that there is always the largest possible number of renewable kilowatts in safe conditions. For this reason we have set up a control centre for renewable energies (RECC), that is the only one of its kind in the world, to make this possible.

Likewise, we are fully aware of the impact caused by electrical infrastructures and for this reason, we try to guarantee that all our activities are carried out based on the strictest environmental criteria with the objective of preventing or reducing the interactions generated by the facilities on the environment, based on the principles assumed in our environmental policy and aimed at striking the necessary balance between business activity and sustainability.



In this way all the environmental activities carried out by the company during its day-to-day processes have led us to become the IBEX-35 company with the best rating in this aspect by the corporate accountability observatories of reference in Spain and also, consolidate our position in the exclusive Dow Jones international and European sustainability indexes.

This recognition not only adds value to our business management, but also confirms the line of action we must maintain to continue being a model of reference in this field. Each acknowledgement makes us feel proud, but above all, drives us on to continue striving to achieve it in the future. It also extends our environmental commitment to our collaborators and other interest groups, with whom we interact to ensure that together, and based on our responsibility, we can combat the increasingly more evident consequences of climate change and global warming; in short, to protect our home, the only one we have.

Luis Atienza Serna  
President of RED ELÉCTRICA DE ESPAÑA

## Who Red Eléctrica is

# 1

We are the leading company in the electrical energy transmission sector and responsible for the operation of the Spanish electrical system, and for the transmission network operations.





We operate the peninsular and extra-pensinsular Spanish electrical system, guaranteeing the technical conditions for the electricity to flow constantly from the generating centres to the consumption centres through a transmission network that distributes electricity throughout the entire country.

We own the Spanish high-voltage electricity transmission network. Our facilities consist of the electrical control systems that direct and supervise the system operation, along 33,503 kilometres of high-voltage transmission lines, and through 2,905 positions in substations with a transformation capacity of 55,409 MVA.

### Evolution of facilities

		2004	2005	2006
Lines (km of circuit)	<b>Km of circuit</b>	<b>27,855</b>	<b>33,096</b>	<b>33,503</b>
	400 kV	16,547	16,808	17,005
	220 kV and under	11,308	16,288	16,498
Substations	<b>N° of positions</b>	<b>2,629</b>	<b>2,731</b>	<b>2,905</b>
	400 kV	835	877	950
	220 kV and under	1,794	1,854	1,955
	<b>Transformation (MVA)</b>	<b>36,553</b>	<b>54,209</b>	<b>55,409</b>

All the activities we carry out are done in accordance with a strict environmental policy, based on an ethical commitment to society, and integrating environmental protection into our business management, in order to create ongoing added value. To do this, we have an Environmental Management System, which was certified in May 1999, based on the UNE-EN ISO 14.001:2004, standard and registered in the

Community Ecomanagement and Ecoauditing system (EMAS) under registration number E-SB-000013 since October 2001.

We are the first business group in the energy sector to hold the triple comprehensive quality, environmental and occupational safety and health certification for all its companies.



2006 has led to the consolidation of Red Eléctrica in the main Dow Jones Sustainability Indexes, and for the first time ever, the company has been included in the world indexes (DJSI World) and European indexes (DJSI STOXX) for the second year running.

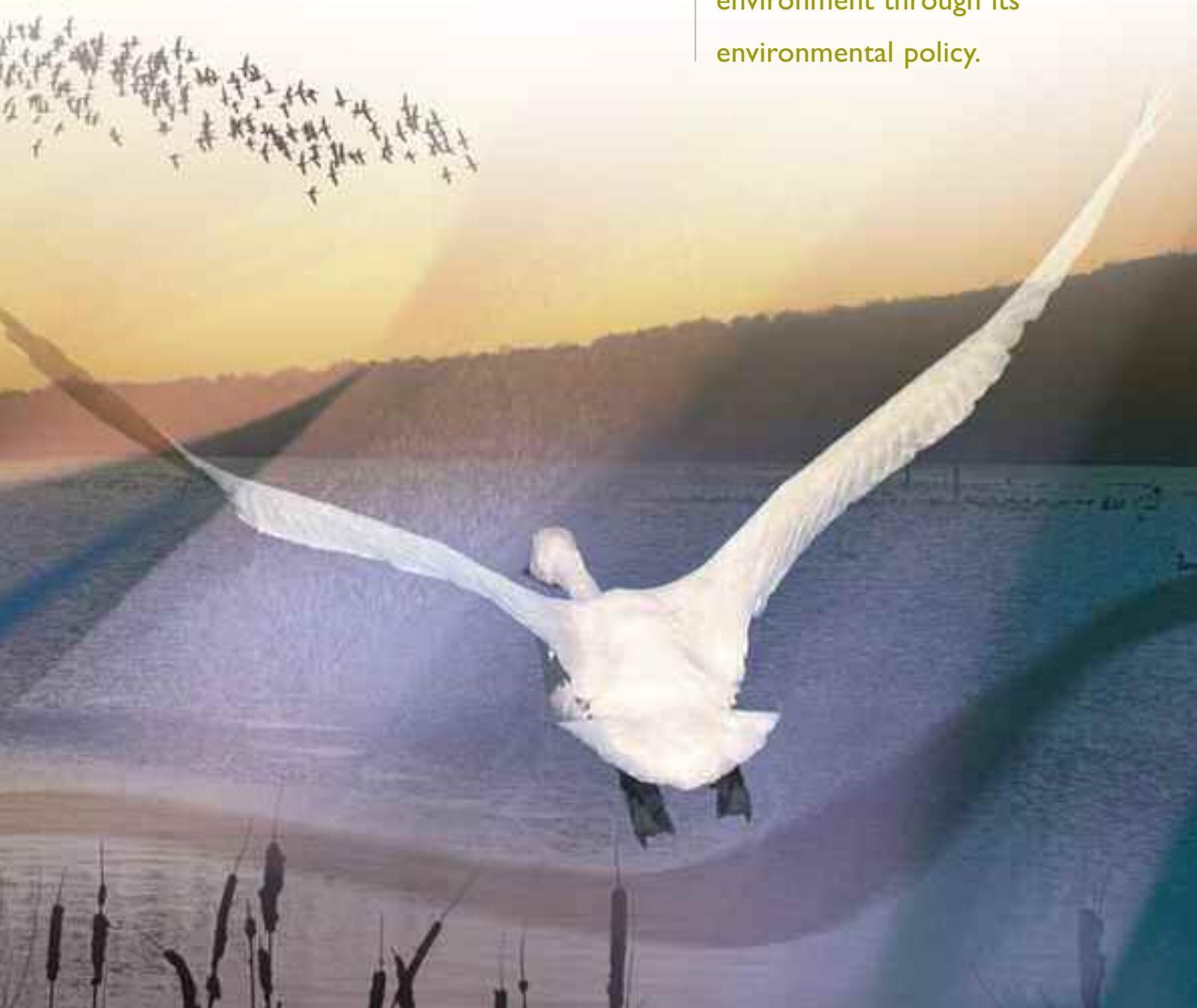


Our Environmental Department is formed by 20 professionals with widely varying educational backgrounds who are experts on environmental affairs, and actively support all the organisational units in developing their daily activities. Respect for the environment is the task of all our employees and collaborators in carrying out our everyday work, and contributes to conserving the habitat, ensuring correct waste management and reducing the consumption of natural resources to a minimum in our work stations.

## Environmental Policy

# 2

As a business group, Red Eléctrica expresses its commitment to protect the natural environment through its environmental policy.





The **RED ELÉCTRICA GROUP** expresses its commitment to protect the natural environment and undertakes to ensure that each employee in the group carries out his or her daily activities with maximum respect for nature, through ongoing improvement in complying with their responsibilities and functions.

The principles of our environmental policy are the following:

- To guide the Group towards **sustainable development**, making every effort to strike the right balance between respect for the environment, the fostering of progress and social wellbeing, and economic interests, with a view to creating permanent value.
- To ensure the Group companies become **leaders** in environmental affairs in their business sectors.
- To guarantee **compliance with all regulatory and environmental legislative provisions** applicable to the activities they perform.
- To guarantee **ongoing improvement and prevent contamination** by updating and monitoring the environmental management systems and environmental objectives and goals.
- To foster **research, development** and the use of new technologies and processes, in order to prevent or minimise environmental impacts.
- **To integrate the environmental variable** into the design and development of new plans and projects for facilities and activities or in modifying already existing ones.
- To incorporate environmental requisites into the selection and evaluation of **suppliers and contractors**.
- To prepare and provide permanent **training courses, and foster awareness and motivation** in respect of environmental protection, with the aim of achieving more active participation by employees.
- To develop methods and channels for **communication** with the objective of informing and communicating to interested parties about activities on the subject of the environment.

New version (09/08/06) approved by Management.

## Environmental behaviour indicators

# 3

We are committed to sustainable development, and assume the commitment of forming a part of the companies that implement the best environmental protective measures in carrying out its everyday activities.



**Environmental behaviour indicators**

Objectives		2004	2005	2006	Page
<b>Compliance with Environmental programme</b>	Environmental objectives met/ Total environmental objectives	73.40 %	84.55 %	60.90 %	19

Activities affecting Natura 2000 Network		2004	2005	2006	Page
<b>Land surface area located in habitats are rich in biodiversity</b>	km lines in LIC/km total lines	-	13.12 %	12.45 %	40
	Surface area of lines in LIC <sup>1/</sup>	-	0.097 %	0.099 %	40
	Total surface area of LIC in Spain				
	km lines in ZEPA <sup>2/</sup> /total km of lines	-	9.10 %	9.31 %	40
	Surface are of lines in ZEPA/ Total surface area of ZEPA in Spain	-	0.096 %	0.10 %	40
	Nº substations in LIC/ Total nº of substations (%)	-	8.37 %	7.06 %	40
	Nº of substations in ZEPA/ Total nº of substations		7.41 %	5.70 %	40
<b>Impacts on biodiversity</b>	km of lines constructed in LIC during the year/ km of lines constructed during the year	-	1.82 %	1.18 %	34
	km of lines constructed in ZEPA during the year/ km of lines constructed during the year	-	1.82 %	1.18 %	34
	Nº of substations constructed in LIC during the year/ Nº of substations constructed during the year	-	0 %	0 %	34
	Nº of substations constructed in ZEPA during the year/ Nº of substations constructed during the year	-	0 %	0 %	34

Restoration and protection of the habitat and species		2004	2005	2006	Page	
<b>Habitat restored</b>	Nº new facilities constructed in the year including restoring of landscapes/ Nº of new facilities constructed in the year	14 %	50 %	55 %	34	
	Nº new facilities in which archaeological prospecting has been done during the year during construction*/ Nº of new facilities constructed during the year	62 %	65 %	73 %	34	
<b>Objectives &amp; programmes for protecting and restoring ecosystems and native species</b>	km of lines marked with bird-saving devices	-	631	686	40	
	km of lines market with bird-saving devices/ km of total lines	-	2.84 %	2.89 %	40	
	km of lines marked in ZEPA	-	10.21 %	9.38 %	40	
	Population	Nº of nests	33	40	33	54
	Trend of the pilgrim hawk in Valladolid	In natural environments	36 %	30 %	30 %	54
	In electric cables laid	64 %	70 %	70 %	54	

Consumption of natural resources		2004	2005	2006	Page
<b>Consumption of nat. resources</b>	Electricity consumption <sup>(1)</sup> (kW h/employee)	7,193*	9,592*	10,139.50	42
	Water consumpt. <sup>(1)</sup> (m3/employee)	11.23	9.41*	21.30	41
	paper consumt. (kg/employee)	47.01	34.79	28.08	42
	Company vehicle consumpt. (litres/vehicles)	-	2,108.7	1,527.05	43
	Consumpt. of CDs/DVDs (unit/employee)	-	3.08	5.47	43
<b>Indir. Consumpt. Of nat. resources</b>	Elect. Consumpt. Of employees at home (kW h/employee)	10,206.58	10,091.87	8,913.74	42

(1) These data correspond to all facilities on which information exists.

\* Data have been recalculated and corrected.

<sup>1</sup> LIC = Site of community importance

<sup>2</sup> ZEPA = Specially protected bird zone

Waste generation		2004	2005	2006	Page
Total production of waste	kg of hazardous waste	146,526	106,415	247,343	45
	kg of non-hazardous waste	1,671,086	1,838,057	1,088,118	45

Accidents		2004	2005	2006	Page
Tipping of oils & fuels	N° accidents involving spilling of oils and fuels during the year caused by maintenance activities	3	7	10	48
	N° accidents involving spilling of oils and fuels during the year caused by construction activities	3	15	6	48

Research & Development		2004	2005	2006	Page
Envir. R+D+i	Expend. in envir. R+D+i / Total expend. on R+D+i (%)	9.54	8.85	11.56	52

Training and Awareness		2004	2005	2006	Page
Envir. training	Employees receiving envir. training during year	5.40 %	5.30 %	3.66 %	62

Communication with interest groups		2004	2005	2006	Page
Envir. communication	N° of envir. consultations	30	24	31	67
	N° of envir. complaints	5	9	2	67
	N° visits to envir. section of external website	38,406	54,486	88,915	66
	N° downloads of publications on the environment in the external website	-	11,552	131,044	73

Collaborators		2004	2005	2006	Page
Suppliers Behaviour in Envir. affairs	Suppliers with certified Envir. Mgmt. Syst. (ISO 14.001 or EMAS)	-	22.28 %	38 %	76
	Suppliers with Envir. Mgmt. Systems being implanted or certified	-	26.28 %	14 %	76

Fines		2004	2005	2006	Page
Incidents & fines for Breach of Envir. Regulations	N° cases ending in fines in the year	1	0	0	80
	Total amount of fines during year (euros)	374.7	0	0	80

Environmental costs		2004	2005	2006	Page
Envir. investment	Envir. investment (euros)	1,704,464.50	2,074,968.98	6,293,732.62	84
	Envir. Invest/total invest.	0.70 %	0.57 %	1.22 %	85
Envir. Expenses	Envir. expenses (euros)	4,893,172.86	5,879,716.37	9,321,594.39	84
	Envir. expenses/Total expenses	1.80 %	2.18 %	2.03 %	85
	Envir. taxes (euros)	855,658.08	901,695.48	971,902.75	85

# 4

## Objectives

We have obtained a compliance rate of 60.90 % in the 2006 Environmental Programme.



Below is a chart summarising the objectives tackled in 2006, indicating those in which compliance did not reach 100 %.

### Environmental objectives for 2006

Areas of activity	Objectives	
Improvement in the environmental management system	Review of environmental policy.	
Birdlife project. preservation for its	Analysis of results of the R+D+i "Bird-saving devices " Termination & conclusions or, if applicable, justification extension	
Plant preservation	Digital guide to trees and shrubs that are compatible with electric lines (VEGE Project)	
Prevention of contamination	Incorporation of an Environmental Inventory into the environmental management system	
	Reduction of the risk of accidental spillages	Construction of 10 ditches and a channel for collecting oil in 8 substations from INALTA and in Escatrón. <sup>(1)</sup> Application of the respective preventive measures in the expansion tanks in power machinery of 10 substations. <sup>(1)</sup> Application of the respective preventive measures c in auxiliary transformers in 7 substations. <sup>(1)</sup> Conditioning of the ditches for collecting oils in the of Litoral. <sup>(1)</sup> Preparation of a project for the construction of a ditch for collecting oil for the reactance in the substation.
	Improvement in control of emissions	Proposed preventive and corrective measures for noise in substation. <sup>(3)</sup> Verification of the method used to evaluate luminous contamination generated by substations: application in 2 projects. Feasibility study for reducing lighting levels in substations operation: application in 2 substations.
	Waste management	Review of the final management of waste generated in maintenance and proposals, if applicable. <sup>(1)</sup>
	Reduction in consumptions	Reduction in total electricity consumption by 5 %. <sup>(2)</sup> Reduction in total water consumption by 10 %. <sup>(2)</sup> Reduction in total paper consumption by 10 %. Reduction in total toner consumption by 10 %. <sup>(2)</sup>
Environmental Rating of suppliers	Incorporation into internal norms of the environmental certification of works. Increase of 10% in the number of suppliers with certified management systems.	
Training	Increase of 8 % in the number of staff receiving environmental training. <sup>(1)</sup>	
Communication	Increase of 30 % in the number of visits to the environmental section of the corporate website. Collaborative agreement with the Territorial Service of Valladolid (belonging to Castilla y León Department of the Environment). <sup>(4)</sup>	

(1) Not terminated during the year and passed over to 2007.

(2) Objective not reached in 2006 which makes it necessary to prepare a plan for reducing consumptions that is stricter and plan activities for direct application.

(3) Carried out but outside the foreseen term.

(4) Pending signature by the Government in 2007.

The degree of compliance of the environmental programme is the result of evaluating compliance of the goals for each objective and applying the weighting that corresponds based on its strategic importance.

Lastly, a chart is shown, summarising the environmental activities planned for 2007.

### Environmental activities planned for 2007

Areas of activity	Objectives	
Improvements to the Environmental management system	Homogenisation of the documentation for evaluating the environmental impact.	
	Portal for the listing and management of environmental information on assets.	
Birdlife preservation	Prevention with respect to effects on birdlife in sensitive areas.	
Plant preservation	Prevention with respect to effects on the vegetation. Definition of criteria for preparing plans for pruning and cutting plants.	
Prevention of contamination	Environmental inventory	Updating of an environmental inventory of assets.
	Reduction in the risk of accidental tipping	Activities for improvement in substations to prevent contamination of soil by oil from power equipment, auxiliary traffic and expansion tanks.
	Improvement in emissions control	Activities to mitigate noise in substations.
	Waste management	Review of the final management of waste generated in maintenance and proposals for improvement, if necessary.
Consumptions Control	Implantation of measures for the control of consumptions of natural resources.	
Relations with suppliers	Environmental certification of works.	
	Environmental awareness among suppliers.	
Training	Increase of 8 % in the percentage of staff receiving environmental training.	
Relations with Interested parties	Improvement in relations with interested parties: Regional authorities, sector-based groups and management areas.	
Communication	Guides on the subject of flora and birdlife.	
Environmental Accountability	Adaptation to the future Environmental Accountability Act.	



## Environmental activities

# 5

We are committed in our work to protecting the environment and we integrate this approach into the normal exercising of our everyday activities.



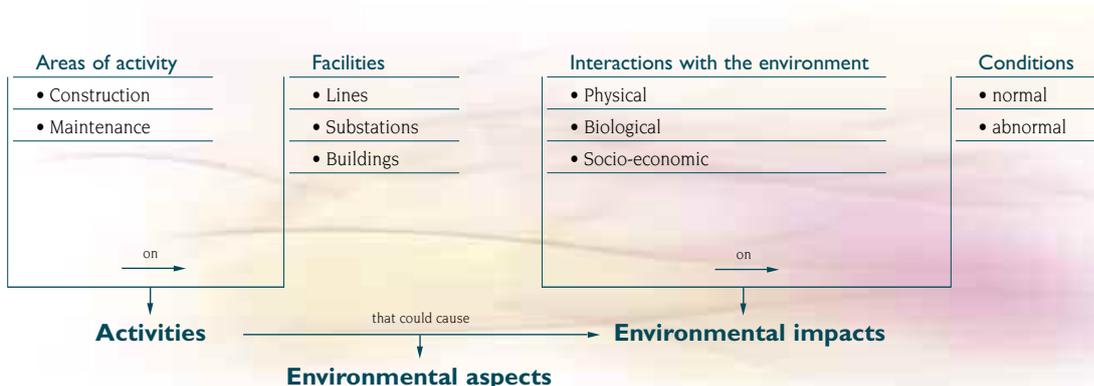


During the **project phase** we carry out environmental studies on all our facilities, and define the alternatives which, although they may be feasible in technical and economic terms, have the least possible impact on the environment and society.

During the **construction phase** we carry out exhaustive supervision over all the works being executed, both for new facilities and modification to existing facilities.

During the **maintenance phase** we carry out systematic, regular reviews and audits on the facilities in operation in order to define and apply preventive and corrective measures, detect environmental incidents and check the efficiency of the measures carried out during the construction phase.

In all project and construction activities and in maintenance activities performed on operating facilities, we identify and evaluate all direct and indirect environmental aspects that could interact with the environment and lead to some kind of negative impact, both under normal conditions and in abnormal conditions of operation.



### 5.1. Environmental activities in planned facilities

We carry out environmental impact studies on all new facility projects whether or not they are subject to the environmental evaluation procedure in accordance with Act 6/2001, of May 8th 2001, on environmental impact evaluation and the modifications thereto introduced by Act 9/2006, of April 28th 2006, on the evaluation of the effects of certain environmental plans and programmes.

A positive environmental impact declaration was obtained from the Ministry of the Environment (EID) for seven projects involving lines and substations:



EID
E/S Abanto-L/Penagos-Güeñes
S.E. Aguayo
L/Pesoz-Salas
L/Cabra-La Roda de Andalucía
E/S Cabra-L/Guadalquivir Medio-Tajo de La Encantada
S.E. Cabra
S.E. La Roda de Andalucía
L/Tordesillas-Segovia
E/S Almodovar del Río-L/Casillas-Villanueva del Rey
S.E. Almodovar del Río
L/Arcos de La Frontera-La Roda de Andalucía

During the year, 36 projects files for lines and substations were involved in some of the stages of the environmental impact evaluation procedures (previous consultations, public information or decisions) and at the end of the year, 13 were pending conclusion. (see appendix)

In preparing the studies, we consulted and reached consensus on the alternative with the least impact for each project with the environmental authorities of each regional government.





## 5.2. Environmental activities in facilities under construction

We carry out environmental supervision on new facilities and electric substations under construction and extensions, renovations and improvements made to facilities already operating. This supervision consists mainly of checking the application of the preventive and correct measures set forth in the project and verifying their effectiveness.

During the year we have carried out environmental supervision work on the construction of 17 new lines and 20 new substations (see appendix).

Below are the activities carried out in the construction of new lines and substations that could give rise to environmental impacts:

### Activities causing environmental impacts

- Use of machinery
- Storage and transfer of oils and fuels
- Storage and management of waste
- Excavation and filling work
- Compacting
- Concreting and cleaning of containers
- Pruning, cutting and felling of trees
- Laying of conductor and ground cables (lines)
- Assembly of equipment (substations)
- Work camps (substations)

The most significant environmental impacts in the construction of new lines and substations are shown below in the table.

Significant environmental impacts in the construction of lines and substations	
Affecting fauna	
Noise	
Affecting the earth	
Affecting historic-cultural buildings	
Affecting vegetation <sup>(1)</sup>	
Generating dust <sup>(1)</sup>	
Tipping in the work camp <sup>(1)</sup>	
Non-hazardous waste	Inert waste (left over from excavations)
	Solid urban waste
	Plastics
	Wood
	Paper and cardboard <sup>(1)</sup>
	Scrap metal
	Plant waste
Hazardous waste	Rags impregnated in hazardous substances
	Containers filled with hazardous substances
	Earth contaminated by hazardous substances
	Lubricants <sup>(2)</sup>
	Grease <sup>(2)</sup>
	Oil from filling underwater cable <sup>(1)</sup>
Fire risk	
Risk of oil and fuel spillages while using machinery <sup>(1)</sup>	
Risk of oil and fuel spillages during storage and transfer of oils and fuels <sup>(1)</sup>	
Risk of oil spillages during assembly of equipment	
Risk of water being affected during earth moving	
Risk of birdlife being affected <sup>(2)</sup>	

(1) Not identified in lines. (2) Not identified in substations.

### • Second Spain-Morocco Cable Interconnection (REMO project)

This project was declared of community interest by the European Union and has been financed by the European Investment Bank and African Development Bank. It crosses a protected area known as a LIC, called the Natural Reserve of the Strait (Tarifa), that is included in the Natura 2000 Network.



Through an agreement signed with the MIGRES Foundation as the mediator between environmental and social agents, research bodies, business associations and private associations from Campo de

Gibraltar and Tarifa , a catalogue of **compensatory measures** was drawn up, divided into three main lines of action. Below are the measures approved by the Follow-Up Committee and implemented in 2006.

Unlike environmental impact preventive and corrective measures, the compensatory measures (which are those defined in the Environmental Impact Declaration issued by the Ministry of the Environment) are not aimed at halting the direct consequences caused by the construction of the infrastructure, but are a set of activities aimed at palliating potential indirect effects caused by the presence of the facility to the ecosystem. These measures are not just limited to compensating habitats and species affected by the construction and subsequent start-up of the facility, but at strengthening the most sensitive elements of the ecosystem, to reduce its fragility.

## Conservation



### Elimination of invasive species and recovery of native species

In coordination with the programme already started by the Department of the Environment (Andalusian Plan for exotic invasive species), specific areas have been assigned in the Natural Reserve in which to set up mechanical methods for the elimination of species such as (*Carpobrotus edulis*) y and eucalyptus (*Eucalyptus rostrata*), and subsequent forest restoration with native plants that grow on the coast: perennial species in dunes such as *Ammophila arenaria*, *Pancreatium maritimum*, *Lotus corniculatus*, *Eryngium maritimum*, *Crucianella maritima*, etc. and other species of trees and shrubs (coastal savin and juniper trees).

After concluding the work of eradication and reforestation, an annual volunteers programme will be developed for maintenance purposes, in collaboration with the University of Cádiz and the Natural Reserve of the Strait.



### Intertidal biota and ocean meadows in the Natural Reserve of the Strait: characterisation, threats and conservation

The aim is to contribute to developing the objectives set forth in the Natural Resources Ordinance Plan (NROP) of the Natural Reserve of the Strait, approved by the Government Council of the Governing Board of Andalusia through Decree 308/2002.

Two of the main natural values of the reserve are analysed; the ocean meadows and the rocky intertidal strip.



### Activities for evaluating the influence of underwater activities on the sea bed

The main objective of this project is to reduce the pressure caused by diving activities on the environment. On the one hand, anchoring structures will be put in place to prevent anchoring to distribute the pressure, and on the other, new anchoring points will be found outside the isle of Las Palomas.

The difference between this programme and other similar programmes lies both in the work carried out beforehand to ensure the correct operation of these structures and the design of a follow-up programme to evaluate the effects of the placement thereof.

#### Protections of summer ponds. Construction of nearby drinking places

After selecting the priority areas, permanent and/or seasonal protective measures will be applied, covering a selection of ponds and habitats.

Research staff from the CSIC will help in designing these measures and the drinking troughs and their supply, taking into account criteria that will help to conserve other populations of water invertebrates (salamander and newts).



## Research

#### Characterisation of river basins and fauna communities in seasonal rivers and streams between the salt-water rivers of Conil and the Guadiaro (San Roque)

The ponds formed by these rivers in the summer are home to a large variety of species of fish, amphibians and mammals, including the Andalusian toothcarp (*Aphanius baeticus*), the endemism of which is classed as being "In critical danger", based on the criteria of the UICN- and the otter (*Lutra lutra*).

This project aims to reduce the fragility of the ecosystem, determined by its great dependence on rainfall, through actions to conserve and restore biodiversity in these water channels, paying special attention to finding new communities of Andalusian toothcarps.



#### Study on the migration of the red Atlantic tuna, (*Thunnus thynnus*) in relation to its sexual maturity and egg-laying in the Mediterranean

Recent studies show that the reproductive biomass of the red tuna has fallen sharply over the last few decades, and the constant fall in the number of fish caught is of great concern to the "almadraba" fishing fleet.

This project aims to contribute to providing knowledge about specific issues and obtaining the necessary information for taking measures to conserve this species that are compatible with the economic development of the zone.





#### **Completing of studies on the fishing of the snapper, carried out in the strait of Gibraltar**

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Many fishing grounds can be found along the extensive coastline of Andalusia, which are an important source of wealth, and have been for fishing since the dawn of civilisation. During the 80s, boats from Tarifa and Algeciras started up the activity of catching the snapper (*Pagellus bogaraveo*) in the waters of the strait of Gibraltar.

Due to the concern of the Fishermen's Guilds with respect to these areas and in view of the reduction in resources and lack of studies on this species in the zone, in 1997 the first research projects on fishing the snapper in the Gibraltar strait were initiated with the aim of trying to establish an idea of the dynamics of the population of this species in the area under study, for use as an advisory tool to achieve the optimisation of resources and determine the status of this activity.



#### **Long-term monitoring project on the Andalusian toothcarp population (*Aphanius baeticus*) in the river Vega (Tarifa)**

The Andalusian toothcarp is a small fish found in western Andalusia and in the waters of the river Vega, in Tarifa, which is one of the few places in which it survives.

The project monitors this population in order to detect and halt activities that could endanger it, and design other activities to improve the habitat in the river area that is occupied by the species.



#### **Ichthyological study and inventory of communities associated with the rocky intertidal zone of the Nature Reserve of the Strait**

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This study aims to contribute to knowledge on the current state of the communities in the intertidal area of the Nature Reserve of the Strait with the objective of establishing corrective measures in the event of the potential tipping of pollutants in coastal waters, to permit the pre-existing ecological balance to be restored. The study will define the best conserved areas along this strip. Using the data obtained, the authorities will have a scientific basis on which to establish a special protective regime in more vulnerable areas.

### **Education and dissemination**



#### **Design and fitting out of the station for tracking migration in the strait of Gibraltar**

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The creation of a Tracking Station will serve to unite and optimise efforts in developing different projects and consolidate their results through new working techniques related to the study of migration in the Strait of Gibraltar and increasing interest in this phenomenon.



#### **Study on the socio-economic and conservational aspects of the whale-sighting activity**

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The intensive, persistent and non-regulated traffic of boats pursuing animals that are resting, feeding, caring for their offspring or socialising may interrupt these activities, and lead to a long-term impact on their population.

The aim is to contribute to learning about the economic impact and behaviour of the whale-sighting industry to permit decisions to be taken and action plans to be drawn up and in order to carry out a series of recommendations for regulating the sector.

In developing the REMO project accompanying measures were determined. These measures, although not yet defined in the Environmental Impact Declaration, are developed in a search for ensuring the social and environmental integration of the project.

#### Accompanying measures adopted

##### **Birdlife tracking plan in the nature beauty spot of Los Lances beach (Tarifa, Cádiz)**

The main objective of the plan was to prevent potential impacts regarding the extending of works on birdlife in general during the breeding season and especially on the reproduction of the Kentish Plover (*Charadrius alexandrinus*), a species that is classified as being of special interest and considered an endangered species in Andalusia.

##### **Study on different alternatives for the sustainable use of environmental and cultural resources in the isle of Las Palomas (Tarifa, Cádiz)**

This isle is one of the best European observatories for migrating sea bird in Europe. Its depths and rocky terrain are home to many animal species and also contain archaeological remains from many different cultures.

After studying the existing resources on the island and analysing the demand for leisure activities in Campo de Gibraltar, the project ends with the design of an effective, sustainable management model, and presents a series of tourist, cultural and educational activities that will contribute to adding value to this nature spot.

##### **Constructio of a bird observatory in the marshes of river Palmones**

The natural beauty spot of the Marshes of Palmones has to put up with great pressure from the industrial sector. Facilitating access by the population to this area and encouraging the participation of citizens in caring for and enjoying an area that offers great wealth in terms of its fauna is essential for its conservation.

##### **Construction of a prefabricated sewage treatment facility in Punta Carnero**

The 1,500-population of the residential complex "El Faro" will use this to reduce contaminant loads in sewage to below the levels established in table III of the Water Act.

##### **Publication in Spanish of the book "The Ornithology of the Straits of Gibraltar" written by L. Howard L. Irby in 1895**

Publishing the new edition of this book is a pioneer effort in highlighting the wealth Gibraltar of birdlife in Campo de Gibraltar and it is conceived as a very special informative tool.

##### **Informative documentary on the phenomenon of migration**



- **New Escombreras-El Palmar Line**

The activities carried out on the electric line are highlighted, as a consequence of their affecting the LIC in El Valle and Carrascoy. Compensatory measures have been established and executed in collaboration with the Department of Industry and the Environment of the Region of Murcia.

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**Compensatory measures adopted**

Construction of an artificial lagoon and observatory for the birds in the surrounding areas, and a dovecot to prevent them from reproducing, for breeding chicks that will be fed to animals of prey in the area.

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In addition, preventive measures have been taken with respect to birdlife and plant life, among which are:

- **Casares-Puerto Real Line**

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**Important environmental activities**

Start-up of a research project to transfer nests (more information is given about this in chapter 6)

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Finally, we should mention the landscaping activities carried out on four lines and four substations to reduce their visual impact and enable them to blend into the surrounding area.

<b>Landscaping activities</b>	
REMO Project. 2 <sup>nd</sup> interconnection cable between Spain and Morocco	More information at the start of the chapter (Remo project).
L/Cabra-La Roda de Andalucía	Restoring of slopes surrounding two supports. Restoring of the natural slopes in the terrain with topsoil.
E/S en la S.E. Brovales	Restoring of slopes.
E/S en la S.E. El Palmar -L/Litoral-Rocamora	Restoring of slopes.
S.E. La Roda de Andalucía S.E. Cabra	Restoring of slopes with previously stored topsoil, minimising contrast in colour between the deeper substratum and the surface earth.
S.E. Almodóvar del río	
E.T. Tarifa	More information at the start of the chapter (Remo project).



In 2006 we have applied preventive and corrective measures on new lines and substations in an effort to attenuate the effects of the construction of the facility on the environment.

#### **Preventive measures**

Archaeological prospecting  
Hoisting of supports with a jib crane  
Storage of topsoil  
Installing of bird-saving spirals  
Transfer of nests

#### **Corrective measures**

Restoring of slopes with hydro sowing and vegetable earth  
Regeneration of roads

As a result of the environmental activities carried out under construction during the year, below are several indicators.

Environmental behaviour indicators		2004	2005	2006
Impacts on Biodiversity	km of lines constructed in LIC during year/ km of lines constructed during year.	-	1.82 %	1.18 %
	Km of lines constructed in ZEPA during year/ Km of lines constructed during year.	-	1.82 %	1.18 %
	N° substations constructed on LIC during year / N° substations constructed during year. <sup>(1)</sup>	-	0	0
	N° substations constructed on ZEPA during year / N° substations constructed during year.	-	0	0
Habitat restored/ Protected	N° new facilities constructed during year. involving landscaping / N° new facilities constructed during year.	14 %	50 %	55 %
	N° new facilities involved archaeological Prospecting during year. During construction / N° of new facilities constructed during year.	62 %	65 %	73 %
Oil & fuel spillages	N° of accidents involving oil & fuel spillages during year in construction activities.	3	15	6



### 5.3. Environmental activities in facilities in operation

Below is a list of activities carried out on facilities in operation which may generate environmental impacts.

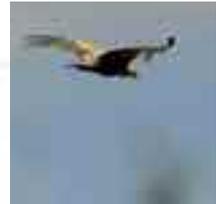
#### Activities generating environmental impacts

Presence of building	
Presence of line	
Presence of substation	
Energy transmission and transformation	
Maintenance of gardens and electric parks	
Maintenance of line streets	
Maintenance of line supports	
Use of machinery in maintenance of lines	
Uses & maintenance of equipment:	<ul style="list-style-type: none"> <li>• Electricity generators</li> <li>• Fuel tanks</li> <li>• Evaporative condensers</li> <li>• Air conditioning equipment</li> <li>• Intensity and capacity transformers</li> <li>• Power machines</li> <li>• Auxiliary transformers</li> <li>• Ditches for oil collection</li> <li>• Equipment with sulphur hexafluoride</li> </ul>
Transfer of oil for equipment maintenance	
Supplies and/or storage of contaminants	
Consumption of natural resources	
Waste	

Of all the environmental impacts identified, the most significant following the 2006 evaluation are the following. Measures have been taken for each one, as described in this publication.

#### Most significant environmental impacts

Impact on environment due to clearing, pruning and felling trees
Impact on environment due to consumption of electricity and water
Risk of impact on the environment due to spillages or leaking of oil in power machines, in auxiliary traffic
Risk of impact on the environment due to spillages or leaks of oil from equipment containing PCBs
Storage and elimination of non-hazardous waste
Storage and elimination of hazardous waste



#### Significant environmental impacts detected on certain occasions

Risk of environmental impact due to fire
Risk of impact on birdlife due to collision with ground cable
Risk of impact on the environment due to spillages from fuel storage tanks

Of all the environmental activities carried out in maintenance work on facilities in 2006, the following are highlighted:

With respect to activities aimed at **birdlife protection**:

- Rescue in Cáceres of a golden eagle chick (*Aquila Adalberti*), from a support on an electric line, carried out jointly by technicians from the Board of Government of Extremadura and specialists from Red Eléctrica. The nest was occupied by chicks, and one was trying to oust the other. As the nest was small, the life of one of the chicks was feared to be in danger, and therefore a rescue operation was quickly set up. One of the chicks was returned to the nest and accepted by the mother and the other was transferred to the bird recovery centre “Los Hornos” (Cáceres).





- Detection of a mass collision of flamingos (*Phoenicopterus ruber*) with a line in Andalusia. Tracking of the line enabled the dangerous sections to be defined and bird spirals were placed on a total of 20 sections. The effectiveness of these marking procedures will be confirmed by tracking the line.
- Continuation of tracking on the experimental marking of the Palos-Guillena line, in the south of Spain. This marking forms part of a study to find more effective and long-lasting solutions, if possible, for reducing the collision of birds (more information is available in chapter 6).
- Continuation of the marking activities laid down in the agreement signed with Aragón for correcting electric lines. A total of about 19 km has been marked, with sections located into a ZEPA area.
- In addition to the markings for reducing the risk of collisions as described above, activities have been carried out in facilities in Castilla y León and y Murcia, where, given their proximity to wetlands, it is estimated that the risk of collision for some bird species is quite high.
- Support provided to technicians of the wildlife section of the Territorial Service of the Department of the Environment of Castilla y León in tracking and inventorying several specimens of pilgrim hawk (*Falco peregrinus*), found nesting on electric lines supports of Red Eléctrica (more information is available in chapter 6).
- Tracking of nesting and the efficacy of devices for preventing the white stork (*Ciconia ciconia*) from nesting in some lines in Extremadura, Castilla-La Mancha, Castilla y León and Madrid (more information in chapter 6).



With respect to activities aimed at **landscape protection**:

- Restoring of slopes in the substation of Anchuelo. On gentler slopes with clay soil and a high risk of erosion, the area has been covered in vegetation by hydro sowing with 95 % of meadow grasses and 5 % of shrubs. In areas with steeper slopes (gradient of over 50 %), pebbles and clay, and in areas with a high risk of erosion, the ground has been raked to guarantee better use of the earth that is adhered to the rock and the area covered with vegetation using xerophilic matter.



Substation of La Espluga (restoring of slopes)

- Monitoring of planting done last year in in the substation of Boimente and filling in gaps in vegetation with new plants.

With regard to activities for **preventing contamination**:

- In 2006 the environmental review of the substations purchased from ENDESA and Unión Fenosa (156 substations) in December 2002 was concluded and reports were drawn up on the environmental situation of all the facilities purchased in 2003 from INALTA (134 substations) as listed to date. This work was carried out in order to ascertain the current environmental status of the facilities purchased and, depending on the results, a series of measures will be set up (preventive or corrective measures) to adapt these facilities.

Work has continued on the socio-environmental inventory, by adding the lines purchased from INALTA (325 lines). This inventory includes intersections with nature areas included in the Natura 2000 Network and those crossing urban areas. As a result, a series of preventive measures has been defined for taking action on areas

classified as LICs, ZEPAs and on the Plan for Measuring Noise and Electromagnetic Fields determined by Red Eléctrica.

The reviewing and application of preventive and corrective measures will continue next year on facilities that are pending, and on new assets not included in the inventory at the moment.



- Also, in compliance with Royal Decree 9/2005 of January 14 2005, establishing the list of contaminant activities in relation to each and the criteria and standards for declaring contaminated soils, the preliminary reports have been concluded (of the 347 measures to be carried out in 391 substations belonging to Red Eléctrica) for presentation to each of the regional communities no later than the end of February 2007.
- In 2006 we have applied the preventive measures defined in 2005 in power machine expansion tanks in two substations (Escatrón and Tajo) and the auxiliary transformers of another two (Mesón and Lastras). This activity has been planned and will continue over the next few years by applying the measures defined in 2005.
- In relation with the plan for eliminating/decontaminating transformers with PCBs (> 50 ppm), to be submitted in 2007 to the Government, 86% of the equipment has been analysed, of which only 20 pieces of equipment have been inventoried and identified as being contaminated with PCBs (50-500 ppm). However, an analytical plan exists for the other equipment which is currently being put into

operation, to permit contamination to be detected, and take the necessary action. To date, four transformers have been eliminated, the last one in 2005.

With respect to activities regarding the **control of electromagnetic fields and noise:**

The work started in 2004 on measuring electrical, magnetic fields and noise continues. This year, two objectives have been set for ascertaining these values.

- On the one hand, five lines re-powered this year have been measured, before and after carrying out the activity, to ascertain the variations generated in those values. The final conclusion is that the values obtained have shown no increase.
- And on the other hand, work has started on measuring in the facilities recently purchased by Red Eléctrica from ENDESA and Unión Fenosa (55 lines and 16 substations) located near towns.

In the absence of Spanish legislation on electrical and magnetic fields, we use the European recommendations for public exposure which establishes that the population must not be exposed to 50 Hz electrical and magnetic field levels that exceed 5 kV/m and 100  $\mu$ T respectively, for a prolonged period of time.

Generically speaking, we can say that the electric and magnetic field measurements comply with the European recommendation.



Evaluation of noise measurements is more complex since in most points measured, the noise was not due to the facility itself, but to traffic, machinery, planes or cattle. However, when the main source generating the noise was high-voltage electric lines, the value at no time exceeded 40 dBA.

Environmental behaviour indicators		2004	2005	2006
Land surface area located in habitats w/great biodiversity	km line in LIC/km of total lines	-	13.12 %	12.45 %
	surface area of lines in LICs/total surf. area of LIC in Spain.	-	0.097 %	0.099 %
	km lines in ZEPAs/km of total lines	-	9.10 %	9.31 %
	surface area of lines in ZEPAs/total surf. Are of ZEPAs in Spain	-	0.096 %	0.10 %
	Nº substations in LICs/total nº total of substations	-	8.37 %	7.06 %
	Nº of substations in ZEPAs /total Nº of substations	-	7.41 %	5.70 %
Objectives & programmes For protecting & restoring Native ecosystems & species in degraded areas	km lines marked with bird saving devices	-	631	686
	km lines marked with bird saving devices/km of existing lines	-	2.84 %	2.89 %
	km of lines marked in ZEPAs/total km of lines passing through ZEPAs	-	10.21 %	9.38 %

#### 5.4. Consumption of natural resources

In our daily activities, we consume natural resources that form a part of our environment, and excessive consumption will lead to the exhaustion of these resources. We are aware of this and therefore try to act by reducing basic consumptions such as water, electricity, paper, fuel, etc.



During the year efforts have been made to arouse awareness among employees, and for this purpose, a work group has been set up between the areas that are directly involved. Furthermore, in the internal website a section has been opened on best practices, which includes an



article every month, on the subject of concern for the consumption of natural resources and a green box has been created for suggestions, with a prize for the best one. This line of activity is based on the great involvement and collaboration on the part of the employees.

Activities carried out internally and campaigns set up by the Government to reduce the problems of drought are succeeding in arousing awareness among all the staff. Red Eléctrica continues to promote the campaign “Súmate al Reto del Agua” (Join up for the Water Challenge) to achieve more responsible water consumption. Support to this initiative, led by Canal de Isabel II and the Community of Madrid, means disseminating best practices with respect to water consumption.

The work centres of our offices in northern Spain (Bilbao), western Spain (La Coruña) and Southern Spain (Seville) use rainwater that accumulates in tanks for watering gardens, sanitary water or for fire prevention. Furthermore, in all new substations in which this measure is feasible, ducting systems have been installed to take the water from roofs to the tanks. In certain centres on which information is available, an increase has taken place in water consumption.

	2004	2005*	2006
<b>Water consumption (m<sup>3</sup>/employee)</b>	11.23	9.41	21.30

In 2006 data from the western branch and 6 substations was included, in which the water meters were not inventoried until now.

\* The value has been re-calculated and corrected.  
These data correspond to all facilities on which information is available.

We have detected a slight increase in the consumption of electricity in some centres with historic records, and therefore actions to promote awareness will be increased, giving continuity not only to the

campaign in operation, but also ensuring that it is brought closer to employees.



We have started up a study to analyse energy efficiency and the use of solar energy (more information is available in chapter 6).

In addition, a feasibility study has been developed, recommending measures for reducing electricity consumption in substations (more information in chapter 6).



	2004*	2005*	2006*
<b>Electricity consumption (kWh/employee)</b>	7,193	9,592	10,139.5

In 2006 data have been incorporated on the western Branch, 8 substations and one underground cable, in which the meters were not inventoried until now.

\* The value has been re-calculated and corrected.  
These data correspond to all facilities on which information is available.

The campaign for arousing awareness has shown positive results. It confirms that electricity consumption in the home has fallen.

	2004	2005	2006
<b>Electricity consumption by employees at home (kWh/employee*)</b>	10,206.58	10,091.87	8,913.74

\*refers to all employees on the payroll entitled to this social benefit and retired staff.

There has been a fall in paper consumption thanks to actions such as purchasing printers that print on both sides of the paper and the ever-increasing sending of e-documents, together with the efficient use of a document management system that allows for easy access to documentation stored without the need to handle paper copies.

	2004	2005	2006
<b>Paper consumption (kg/employee)</b>	47.01	34.79	28.08

We have analysed a new indicator, paper consumption in publications and correspondence to interested parties and society in general. It is clear that there has been an increase this year, due to the fact that this year, more publications about the activities of Red Eléctrica have been

disseminated outside the company, as part of its effort to ensure greater transparency in providing information.

	2005	2006
Paper consumption in external publications (kg)	57,526	66,166

There has also been an increase in the use of CDs and DVDs compared to past figures. In this respect, we will continue to use USB memories and computer devices with re-recording options.

	2005	2006*
Consumption of CDs/DVDs (unit/employee)	3.08	5.47

\* The 2006 figures includes data on purchases made directly from work centres.

In turn, the consumption of fuel in company vehicles has fallen, which we do not consider relevant, given that the use of company vehicles is based on service needs. During the year, new vehicles were purchased (rising from 233 in 2005 to 347 in 2006).

	2005	2006
Fuel consumption (litres/vehicle)	2,108.7	1,527.05

Having analysed the results, we undertake to improve the figures by designing measures to gradually reduce the consumption of natural resources. The actions proposed in 2006 will continue to be applied as part of the action plan for reducing basic consumptions and we will also work towards encouraging awareness among employees.



5.5. Waste

The activities carried out with respect to maintenance and construction of new or already-existing facilities lead to the generation of waste that is disposed of in the most suitable manner for ensuring environmental



protection. A large variety of waste is generated during **maintenance work** on the facilities, coming from a wide range of activities such as repair work, replacing of oil in transformers and reactances, substitution of equipment at the end of its useful life, breakdowns, accidents, pruning of vegetation, office activities, etc. which makes it very difficult to reduce.

Consequently, the most important activities are aimed at improving internal management and using the most appropriate disposal systems, in an effort to foster reuse, recycling/regeneration and evaluation.





### Waste generated during maintenance activities

	Quantities of waste managed (kg)		
	2004	2005	2006
<b>Non-hazardous waste</b>			
Sediment from septic tanks	37 *	67 *	43.57*
Metal scrap	1,054,951	691,856	917,641
Inert waste	100,920	928,629	—
Paper and cardboard	75,155	72,024	73,405
Toner	530	1,253	343.6 <sup>(3)</sup>
Wood	46,010	64,850	42,455
Vegetable waste	349,540	<sup>(1)</sup>	<sup>(1)</sup>
Non-hazardous electrical & electronic waste	-	65	473
Plastics	5260	-	187.67
Vegetable cooking oil	320	320	2,200
<b>Hazardous waste</b>			
Used oil	61,042	72,650	168,730
Oil and water mixtures	58,760	0	0
Transformers with PCBs	0	459 <sup>(2)</sup>	0 <sup>(2)</sup>
Oils with PCBs	0	180	0
Lead batteries	3,750	1,102	311
Nickel/Cadmium Batteries	16,084	2,327	2,070
Dry cell batteries	141	227	89
Fluorescent tubes	356	428	539
Earth impregnated with hydrocarbons	4,762	26,940	14,253
Recipients containing hazardous substances	164	673	1,113
Absorbents, filtering materials, cleaning rags and protective clothing contaminated by hazardous substances	1,139	663	59,287
Silicagel	328	0	733
Non-halogenated solvents	0	29	35
Halogenated solvents	0	500	0
Hazardous lectrical & electronic waste	0	35	0
Water-based cleaning fluids	0	200	0
Paint waste	0	2	183

\*Quantities in m<sup>3</sup>

(1) No data are available, mainly evaluated by owners or incorporated into the terrain.

(2) More information in chapter 5.3 Plan for the elimination/decontamination transformers with PCBs.

(3) Data for the first six months. Since July 2006 maintenance and substitution of equipment is done by an external company. The procedure is being reviewed in order to obtain information, but the final waste management is being carried out correctly.

During the **construction** of a new facility or the modification of an already-existing one, the waste generated is disposed of by the suppliers, who are instructed to use the method that causes the least harm to the environment for disposing of it, from the generation thereof to its final destination.



### Waste generated in construction activities

#### Non-hazardous waste

Left-over earth from excavations

Vegetable waste

Rubble

Paper and cardboard

Plastics

Wood

Scrap

Solid urban waste

#### Hazardous waste

Paint waste

Rags impregnated with hazardous substances

Earth contaminated by hazardous substances

Recipients containing hazardous substances

Lubricants

Grease

Oil for filling underwater cables





## 5.6. Environmental accidents

We are well aware of the devastating consequences that an accident may have on the environment, and for this reason, we apply preventive measures to prevent them from happening, or to reduce their effects to a minimum, in the event of them happening. Thanks to the application of these measures, the consequences of the accidents that have occurred in our facilities have been of only minor importance.

### Preventive measures in the event of fire

- Selective pruning and felling of plants and trees to clear paths and maintenance of safety distances (in 2006 this item incurred expenses amounting to 6,664,040.20 euros).
- During the whole of 2006, contacts have been established with different regional authorities to emphasise the importance of exchanging information, identifying preferential areas in which to act, depending on the fire risk, and coordinating actions to extinguish the fire, if necessary.

These contacts are aimed at establishing collaborative agreements in the future for preventing and combating forest fires.

### Preventive measures in the event of fires and spillages

- Preventive maintenance of equipment containing oil.
- Digging of ditches and/or placing of containers under equipment or the storing of potential contaminant substances.
- The handling of equipment and contaminant substances on impermeable surfaces.



Furthermore, this year a review was made of the status of the preventive measures in place to deal with spillages of oil from power machines and auxiliary transformers, and there has been a great increase in the provision of materials for taking actions to prevent spillages.

The table below gives a summary of the type of accident occurring and the frequency with which the accidents have taken place during the past three years.

Accidents occurring	2004	2005	2006
<b>Construction activities</b>	<b>3</b>	<b>15</b>	<b>6</b>
Oil spillages and leaks due to failures in filling transformers	1	0	1
Leaks and spillages of oils and hydrocarbons due to minor failures while using machines during construction	2	15	5
<b>Maintenance activities</b>	<b>9</b>	<b>7*</b>	<b>15</b>
Fires due to line failures	2	0	1
Explosions of intensity and capacititive transformers	0	1	4
Leaks and spillages of oils and hydrocarbons during use and maintenance of substation equipment	7	5	10
Flooding	0	1	0

\*Data reviewed with respect to the audited 2005 Management Reporta



## Research and development

# 6

In the field of technological development and innovation, we work with prestigious research teams to achieve objectives and results that will add value to our business activities.



11.56 % of total expenses dedicated to R+D+i was allocated to environmental projects.

In this field, we continue to make great efforts to develop new research lines that are compatible with our business activities, through **birdlife protection.**

- **Transfer of nests:** this research project arose due to the need to take action (by way of maintaining or modifying facilities ) on a electric line support in which nests had been built. The objective was to determine the effect of the actions taken on the successful reproduction of crows, and their survival rate of the young from the time they leave their nest to the time they start dispersing.

Actions were carried out on a nest occupied by two crows (*Corvus corax*) with four chicks on the support of the Casares-Puerto Real (Cádiz) line. The four chicks were removed from the nest, marked with rings and their morphometric particulars were noted. They were then taken to an artificial nest installed 200 metres from the nest and were then tracked. The results can be considered successful since there was no alteration in the behaviour of the adults or the young. In view of the results obtained, a protocol of action was set up to enable the above-mentioned situation to be dealt with quickly and effectively.



- **Protection of steppeland birds:** work continues on a research project with researchers from the Biological Station of Doñana (Scientific Research Council, CSIC), in order to analyse the impacts of our lines on Andalusian steppeland birds and in particular, the great bustard (*Otis tarda*), and also define potential

measures for controlling the habitat of this bird, to reduce the risk of it colliding with the lines.

This survey is being developed in the steppelands of the province of Córdoba, where there is an important population of steppeland birds that feed off cereal crops in the area.

The study defines measures related to modifying the ecology of the land in the area inhabited by the bird population that has been identified as being potentially affected. In 2007 a natural laboratory will be created for applying the defined measures. (This will be continued in the 2007 Environmental Programme).



- **Protection of bird ofprey:** we continue to collaborate with the experts from the Wildlife Section of the Territorial Environmental Service of Valladolid, which belongs to the Department of the Environment of the Governing Board of Castilla y León, in laying down artificial nests and tracking and inventorying pilgrim hawk species (*Falco peregrinus*) in natural or artificial nests installed in electric line supports

Electric lines supports are the substrata most often used by the pilgrim hawk in the province of Valladolid, since they allow them to nest in habitats with no traditional substrata, thereby reducing the risk of attack by predators.

**Population trend**

Year	Total N° of nests	% in natural environment	% in electric lines
2004	33	36	64
2005	40	30	70
2006	33	30	70

Information, census and tracking of pilgrim hawk (*Falco peregrinus*) population in the province of Valladolid 2001-2006. Carlos Pérez Pérez, 2006. Unpublished report. Territorial Environmental Service, Valladolid.

We should mention that success in breeding in electric lines is 56 %, whereas for other substrata, the success rate is 50 %.

- **Protection of long-legged birds:** nesting of the white stork (*Ciconia ciconia*) in electric line supports is today a great problem for electrical companies. Within this framework many research projects have been carried out in order to find measures to make



nesting by the birds compatible with the correct operation of the facilities. As a result, the design was developed and a method tested to prevent them from nesting. This was registered as a public utility model in 2000.



Since 2000 work has been executed on the tracking the effectiveness of the measures installed on line supports in the communities of Extremadura, Castilla-La Mancha, Castilla y León and Madrid. Based on the result of this tracking operation, we can say that in 53% of cases, the measures installed have been effective.

#### Evolution of the nesting of the white stork in Red Eléctrica supports

Year of tracking	Total N° of nests
2004	384
2005	426
2006*	849

\* New lines have been included in the tracking operation

#### Evolution of the white stork population in Spain

Year of census	N° of couples included in census
1992	10,000
1994	16,643
2004	33,215

Information taken from the "Atlas of bird reproducing in Spain" (Ministry of the Environment and SBA/BirdLife), Madrid, 2005

- **Anti-collision measures:** we continue to work on the research study with the Biological Station of Doñana (CSIC). The aim of this study is to compare the efficiency of the bird-saving device model used to date (bird spirals) with a new experimental model (a bird-saving device in the shape of a cross- registered as a public utility model in 2005).

Both models were installed in an electric line in the section between the municipal boundaries of Palma del Condado and Paterna del Campo (Huelva). A total of approximately 10 km of lines were marked, eight of which were marked using the 3-coloured bird spiral, and the other two were marked using the new bird-saving design (cross).



In 2006 work has been continued on tracking the effectiveness of the marking measures installed. The data gathered to date show the greater efficacy of the new design. This field tracking project has been completed by laboratory testing on the colour, vibration, aging and a wind tunnel. These tests have not yet been concluded.

With respect to research studies on **electrical and magnetic fields**, we collaborate with universities, research centres, official bodies and

companies in the sector, as well as other entities with great national and international prestige.



- For several years now, we have been cooperating actively in the study "Currents induced in the human body by industrial-frequency electromagnetic fields" together with specialists from the "Salvador Velayos" Institute of Applied Magnetism (which is a part of the Complutense University of Madrid and the CSIC) and UNESA. The aim of the study is to develop a model for calculating the density of induced current generated by electric and magnetic fields in the human body.

During the first phase, the method of transmitting induced current *in vivo* and *in vitro* to the main organs (kidney, heart, liver, etc.) was analysed in an experimental animal, specifically, a pig, given the great structural similarity of its organs to those of humans.

The results obtained were used to develop a computer model of each organ to enable us to ascertain the currents induced in them depending on the fields to which they are subjected.

In 2006 it was verified that the values obtained through the computer programme coincide with the experimental values measured (in the experimental pig) for previous years.

Also, a new research line has commenced on **acoustic emissions** generated by substations.

- This study commences with the development of a computer programme to permit environmental noise in substations to be predicted. To do this, the sources of the noise were identified and a working method established for developing acoustic impact studies by means of graphic representation of the emission levels in noise maps.



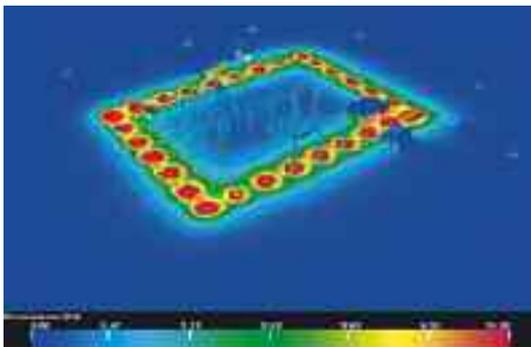
Using the results obtained, preventive measures have been adopted to reduce noise generated by power transformers in the substation of Cartelle (Orense). After analysing the type of noise and evaluating the different possibilities, it was decided that the best option would be to install an acoustic screen near the transformers. The screens will be installed next year, and the effectiveness of this solution will be checked.

In addition, in the field of **luminous contamination** a new research line has been started up.

- In 2006 a feasibility study was carried out on the lighting levels in electrical substations in operation, taking the substation of Anchuela as a pilot test.

In addition a document has been drafted containing a proposal for corrective measures and recommendations to be applied in substations in operation and newly-constructed substations, aimed at studying the option of reducing electricity consumption and luminous contamination.

In 2007 the study will be continued, in addition to studying the measures and recommendations.



- In two substations planned for 2006 (Segovia and Almodóvar del Río) a method was established for evaluating luminous contamination generated by substations. We have observed that both the method and the computer tool are valid for use in future studies on the subject of luminous contamination.

The growing concern for **reducing the consumption of natural resources** has led Red Eléctrica to develop projects for working on this line (SOLIDI project).

- As an important agent in the electrical system, we wish to contribute towards the implantation of photovoltaic solar photovoltaic energy and/or thermal energy through development and innovation for integrating these energies, using advanced technologies in our Head Office buildings (Madrid). Through this project, we are promoting new technologies and will be able to offer our facilities as a test bench. In the project, different alternatives will be analysed for installing photovoltaic solar energy, and depending on the results obtained, a study will be made to ascertain the most appropriate use of this energy: either its incorporation into the distribution network or consumption by Red Eléctrica.
- Simultaneously, a study is being developed on the energy efficiency of those buildings, and depending on the results, we will apply measures to adapt this to our buildings, to make them more effective.



Many research studies have also been conducted on the **protection of the flora** that interacts with our facilities.

- Together with the Scientific Research Council (CSIC) and a specialised company, we have started a study on the protection of underwater marine plants. In this study, a method is being developed to transfer the species *Posidonia oceanica* (a species that is native to the Mediterranean), whose meadows have been declared a priority habitat by the European Union. No conclusive results have yet been obtained.





## Training and awareness

# 7

We consider environmental training a strategic line for producing human resources that are increasingly more concerned with protecting the environment.



Training goes far beyond merely the professional scope; it is also aimed at contributing to improve environmental habits in the daily and family life of each employee.



In 2006 3.66 % of our staff received specialised environmental training —both through face-to-face courses and on-line courses— with a total of 2,585 hours of study.

On the other hand, environmental technicians have given courses to university students and professionals, reaching a total of 67 hours of study.

The environmental training areas on which courses were given were the following:

#### **Environmental training areas**

- Environmental management and sustainable development
- Iberian Fauna and Flora
- Restoring of spoiled areas
- Diagnosis and control of environmental problems
- Hazardous waste management in Red Eléctrica
- Environmental management systems
- Plant species rating and evaluation engineering
- Visit to electric power stations
- Contaminated earth
- Environmental communication techniques
- Environmental legislation
- Environmental communication in the company
- Contents of and visits to the Red Eléctrica portal
- Communication skills and environmental forums

The task of arousing awareness has been done through the following communication channels.

- **Training and awareness on consumptions.** A campaign executed in 2006 among the employees of Red Eléctrica, with the aim of trying to achieve reductions of 10 % in the consumptions of water and consumables such as paper, toner, CDs and DVDs and 5 % in energy. To do this, best practices have been posted on the internal website and tips of saving resources and sustainable living habits.
- **Green box.** Set up in 2006 with the aim of collecting proposals from employees for protecting and improving the environment at work and in the home. The best proposal submitted during the year wins a prize, in order to encourage future participation.
- **Internal website.** Since the middle of 2006 the new internal portal “miRed” presents information for our employees on environmental activities carried out by the company in a friendlier way, and best practices for putting into operation in both the home and at work, external events and publications or articles on environmental topics promoted by the company.



- **Quarterly newsletter** with news on 50/60-Hz **electric and magnetic fields** The newsletter has been published since 1999.
- **Entre Líneas.** A magazine that includes important company news, activities and events, and articles on the environment.
- **Red en Línea.** An e-publication offering information on the company’s activities, with new on environmental topics published in the press.

# 8

## Communication

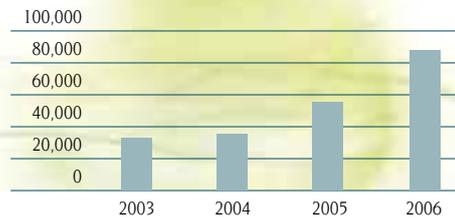
Being aware of the social impact caused by our activities, we provide information and are in permanent communication with all interested parties.





To do this, we have made different environmental communications channels, which include the annual publication of our environmental report and the website ([www.ree.es](http://www.ree.es)) which contains a special section on the different environmental aspects of the company. In 2006 this section received 88,915 visits from different countries, representing 63.2 % more than last year, and an increase of 242 % over the past 3 years.

**Visits to the environmental section**



We also have a system for dealing with and solving **consultations and complaints** from interested parties (mambiente@ree.es), which supervises the responses in the shortest possible time.

#### Evolution of consultations

Land	2004	2005	2006
Birdlife	1	7	8
Electromagnetic fields	5	1	5
Green certificates	1	-	-
Envir. costs	1	0	-
Facilities	4	1	7
Gen. Envir. Inform.	4	2	3
Publications	13	13	<sup>(1)</sup>
Noise	1	0	-
Consumptions	-	-	2
Envir. Mgmt. Systems	-	-	4
Vegetation	-	-	1
Emissionss	-	-	1
<b>Total</b>	<b>30</b>	<b>24</b>	<b>31</b>

#### Evolution of complaints <sup>(2)</sup>

Land	2004	2005	2006
Electromagnetic fields	0	7 <sup>(3)</sup>	-
Landscape impact	1	0	-
Facilities	1	0	-
Admin. requirements	3	0	-
Risk of fire	0	0	1
Noise	0	0	-
Vegetation	0	2	-
Waste	-	-	1
<b>Total</b>	<b>5</b>	<b>9</b>	<b>2</b>

(1) Requests for publications was booked in 2006 by issue raised (birdlife, electromagnetic fields, etc.)

(2) Fines are not included in this table, and are shown in chapter 10.

(3) In the 7 complaints on electromagnetic fields, measurements have been taken and in none of the cases were the values established in the European recommendations for public exposure exceeded.

As a result of applying a tool for integration of projects into the institutional, environmental and social sphere (**PAS**), through communication with our interest groups, we now highlight the most important activities carried out in 2006.



**REMO Project.** The aim of the project was to involve the citizens of Cádiz, society in general and citizens of Campo de Gibraltar in particular, in the process for defining the compensatory measures, from the start. In doing this, the mediation of the MIGRES Foundation was essential when consulting with bodies of research (Doñana Biological station (CSIC-Scientific Research Council)), University of Seville, University of Cádiz, Gibraltar Ornithological and Natural History Society, Cadiz Natural History Society), non-government environmental organisations (Ecologistas en Acción, Agaden Cádiz, Ornithology Group of the Strait, Black Swan Ornithology Group, Circé, Spanish Bird-watching Association), social institutions (Asociación Palestra, Campo de Gibraltar Institute of Studies), business associations (Tarifa Wind Association, Campo de Gibraltar Association of Key Farming Industries, and the Fisherman's Guild), and private concerns (Rural Tourism and Nature Association of the Strait, ORNITUR).

As a result of this interaction, a total of 85 different suggestions were received. After consulting with specialists on the subjects broached and following different meetings with representative from regional administrations (the Department of the Environment of Junta de Andalucía, Provincial Deputation of Cádiz, EGMASA, Governmental Sub-delegation in Campo de Gibraltar- and local entities (Borough Councils of Tarifa and Algeciras), a selection of projects that best adapted to the compensatory measures and were considered of priority importance in terms of local conservation and social interest was made.



**New line of Lada-Velilla.** Information was exchanged on the contents of the Summary report on the project with the Wildlife Protection Fund (WPF), the University of León and different wildlife conservation groups interested in the project. Likewise, an agreement was signed with Doñana Biological Station (CSIC) to make an environmental study of the alternatives arising in response to the Summary Report on the procedure.

An environmental report was also drawn up on the situation of the old Lada-Velilla line passing through the Natural Networks Reserve (Natura 2000 Network), with a view to promoting environmental restoration in the area.



**Interconnection between mainland Spain and the Balearic Isles.**

The councils of Sagunto and Calvia (towns in which the connection substations are planned) were provided with information *in situ* on the project for laying the underwater cables for the Morocco interconnection, and an analysis was made of the similarities and differences in territorial and environmental terms with the future interconnection between Spain and the Balearic Isles.

**Soto-Penagos Line.** A study was prepared on the environmental impact and the project for the borough councils and for associations and entities interested in knowing the plotted course. Agreements were signed with the councils in which the new roads were to be constructed, in order to ensure the integration and adaptation of the project to the surrounding environment.

Through **collaborative agreements** we are working with institutions on projects or activities related to the environment and sustainable development. We invest economic resources in these initiatives (depending on the projects agreed on) and provide the necessary facilities and technical staff for undertaking the project.

Follow-up of projects is done through regular meetings of a Joint Commission that is constituted for that purpose, and formed by representatives of both parties.

- Environmental education project with the collaboration of the Association for the comprehensive development of Sierra de Gata (ADISGATA). On occasion of our 20th anniversary, we assume the commitment to participate in sustainability projects. The first of these projects took place in Sierra de Gata, an area of great ecological importance that houses one of the first facilities set up by the company. The project consisted of developing an environmental education programme aimed at encouraging knowledge about the values of nature among new generations. The entire project was set down in the book *“La Flora en la Sierra de Gata, vista por los niños”*, (Flora of Sierra de Gata, as seen by children) which shows the work done over a period of 6 months by 1,869 schoolchildren and 120 teachers from 21 schools.



- Sponsorship for the acquisition by the GREFA (a group dedicated to the rehabilitation of native fauna and its habitat) of a cold room for the new Rehabilitation Centre and the financing of part of the costs of feeding the animals in the Centre.

- Signing of an agreement with the MIGRES Foundation for conducting studies on nature conservation.
- Participation of the Spanish Bird-watching Association (SBA) in offering advice on the interactions of birdlife and the new facilities of Red Eléctrica.
- We take part in the business platform for sustainable development promoted by the Entorno Foundation. Our participation is especially active in the Work Group with respect to the publicatio "El papel de los negocios en la sociedad" (The role played by business in society).



- We collaborate with the Biological Station of Doñana (CSIC) in several research projects:
  - Analysis of the impact of our electric lines on Andalusian steppeland birds, and in particular the great bustard and potential measures for controlling the habitat of this bird in order to reduce the risk of it colliding with the electric cables.
  - Analysis on the efficiency and durability of marking done using bird spirals and bird-saving devices to prevent them from colliding with the cables.

- We collaborate with the Government of Aragón in reducing the risk of collision among threatened bird species, by marking the lines identified as entailing a risk of birds colliding with them.



- We collaborate with the Territorial Section of Valladolid, which belongs to the Department of the Environment of the Governing Board of Castilla y León in a study analysing the role of electric lines with respect to conservation of the pilgrim hawk.
- We collaborate with the "Salvador Velayos" Applied Magnetics Institute (which is part of the Complutense University of Madrid and the CSIC) and UNESA in the project "Currents Induced in the Human Body by Electromagnetic Fields with Industrial Frequencies".

In 2006 we have promoted the organisation of several **conferences on compensatory measures** for the purpose of stimulating thought and communication between all the agents involved in the process of

determining and setting up compensatory measures in the Natura 2000 Network areas. Each conference was focused on a specific topic.



Furthermore, we also take an active part in **work groups, congresses and debate forums** organised by different bodies, entities and associations of great prestige.

Work Groups	Organiser
"Environmental management systems" sub-committee	AENOR
"Environmental behaviour of electrical systems"	CIGRÉ
Sustainable development performance indicators	CIGRÉ
Utilities practices in sustainable development	CIGRÉ
Work groups for the 8th National Environmental Congress	CONAMA
Environmenta and society	EURELECTRIC
Regulation of the Noise Act	Ministry of the Environment
Work group on electromagnetic fields	UNESA

Debate forums	Organiser
National conference on Environmental Evaluation	Ministry of the Environment
1st National congress on Biodiversity Conservation	APIA and CSIC
Presentation of the Programme for the Recuperation	SEO
Impact of electric lines on Birdlife, experiences and management systems	Parco Delta del Po (Italy)
Presentation of the Entorno 2006 Report	Entorno Foundation
Permanent forums on sustainability	Spanish Sustainability Observatory

#### Meetings with Journalists on Environmental Affaris

Seminar on electric energy, Environmental Policy of Red Eléctrica and the Second Interconnection between Spain and Morocco. Assocoatio of journalists of Campo de Gibraltar.

Seminar on the operation of an electrical substation held in the Aparecida substation. Presentation of the 2004 Environmental Report.

Seminar on birdlife conservation. Placing of "bird-saving devices" and maintenance work on lines by helicopter.. Antena 3 Seville, Canal Sur and TVE Seville.

#### Presence at fairs

Stand at the National Environmental Congress CONAMA 8. (Madrid).

Stand at Madrid Science Fair. (Madrid).

Stand at the event Science in your life (Bilbao).

Stand at the Science Fair (Saragossa).

Also, exchanges of experiences with the Japanese company JAPAN NUS CO., LTD on affairs related to birdlife.

Continuing with the same approach as in previous years, we do a great deal of work with respect to publishing and distributing publications.



Distribution of publications in e-format through the website (www.ree.es), to enable information to be made available to all interested parties, with an important saving in natural resources, with a total of 131,044 downloads, of which 3.7 % were documents in English.

The most important publications in 2006 were:

- 2005 *Environmental Report*, validated by AENOR.
- 2005 *Corporate Accountability Report*.
- *Electric lines: Shelter for the pilgrim hawk*, published in collaboration with the Territorial Section of Valladolid, Department of the Environment of the Governing Board of Castilla y León.
- *Flora of Sierra de Gata as seen by children*.
- Informative leaflets on the Balboa-Alqueva lines and the REMO Project.

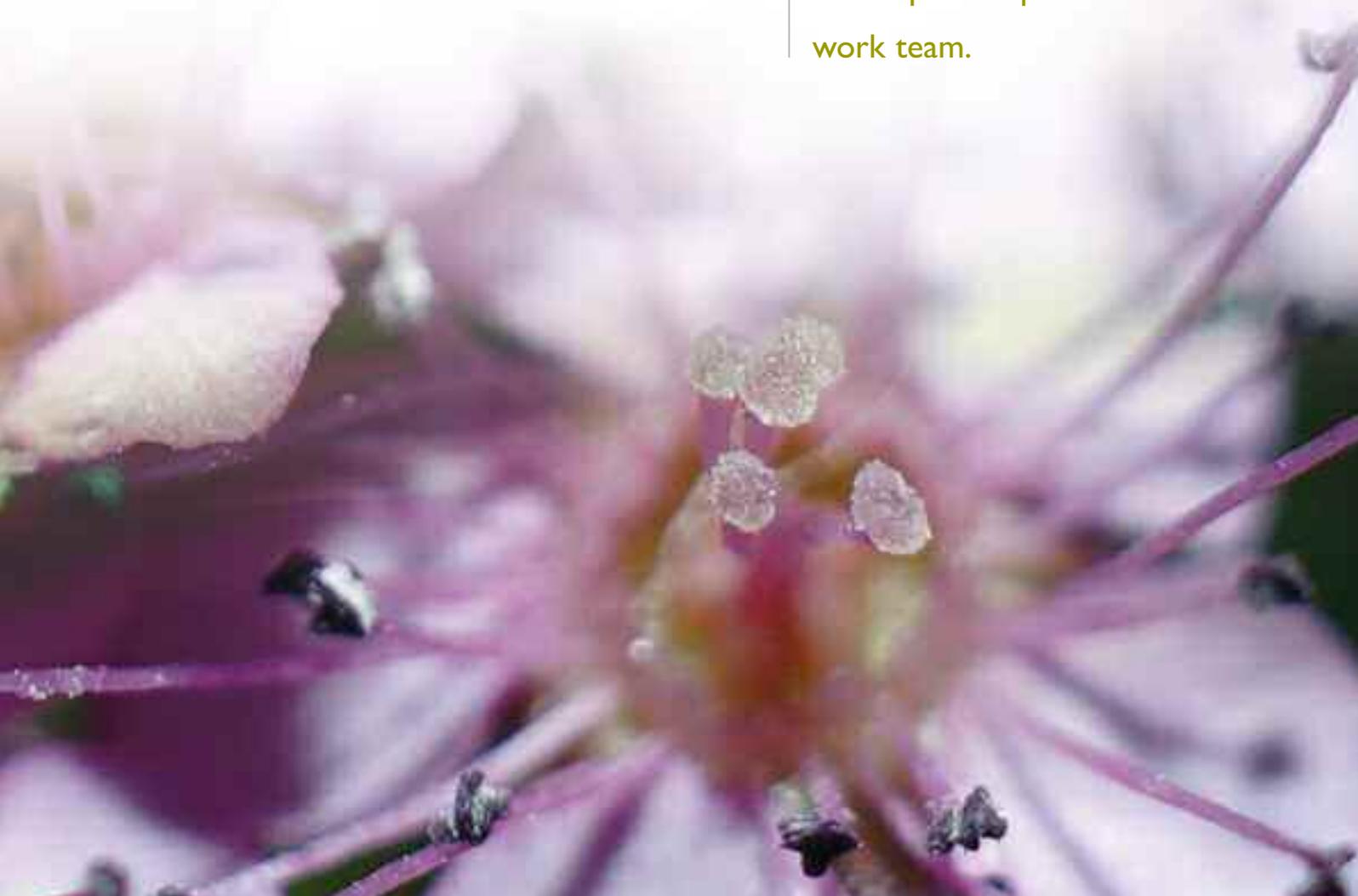


We continue to collaborate with the publication *Red Life* –a magazine dedicated to nature in Andalusia, that contains news items and reports on endangered species (with the sponsoring of two species of birds: the lesser kestrel and the great bustard).

# 9

## Collaborators

We consider our suppliers and contractors to be an essential link in developing our activities and for this reason our commitment towards the environment is extended to each one of them, as an inseparable part of our work team.



Our collaborators also assume our commitment to respect the environment in their daily work. Proof of this is the increase in the number of suppliers having an environmental management system in place that is certified by an external entity, or who are starting to implement one.

Behaviour of suppliers in terms of environmental issues	2005	2006
% of suppliers with certified environmental management systems	22	38
% of suppliers with environmental management systems in the process of being implemented or certified	26	14
Nº of authorised suppliers	350	325
Nº of environmentally-authorised suppliers*	213	198

\*Including suppliers authorised by Red Eléctrica whose services provided or products supplied have environmental connotations that must be considered.

On December 31 2006 a total of 325 suppliers (corresponding to 134 suppliers) requiring authorisation by Red Eléctrica were identified. Of these, 198 suppliers (52 supplies) provide services or supply products with environmental connotations.



Of these 198 suppliers, 75 have an environmental management system that is either certified based on the UNE-EN ISO 14001:2004 standard or registered in EMAS. Of the remaining 123, 28 have notified that they have started the process for implanting it or having it certified.

**Suppliers authorised by Red Eléctrica whose services or products have environmental connotations that must be considered.**

Civil engineering in lines and substations	Assembly and maintenance of equipment in substations
Laying of conductors and ground cables	Supervision of facilities by helicopters
Brigades for supervising construction and maintenance of facilities	Painting of line supports
Topography in lines	Felling of trees
Conditioning of facilities	Application of weed-killer and rat poison
Environmental engineering	Supply of substation equipment (transformers, reactances, etc.)



# 10

## Fines

We continue with our line of ongoing improvement, thanks to the increasingly more intensive involvement of our employees in their everyday activities.





In 2006 a total of 19 files were pending decision, one corresponding to 2004, four to 2005 and 14 to 2006.

During the course of the year the pertinent administrations ordered four files opened in 2004 to be halted.

The status of the files settled by payment of fines from 2004-2006 and those pending decisions as at December 31 2006 are shown in the following table.

Files evolution		Involving a fine	Pending decision
Years opened	2004	1	1
	2005	●	4
	2006	●	14

● Awaiting decision

Below is a table of the type of infringement committed and its cost in the files involving the payment of fines from 2003-2006.

Cost of the infringement (euros)	Year opened			
	2003	2004	2005	2006
<b>Infringement committed</b>				
Unauthorised construction of a hut	280	●	●	●
Pruning and felling without authorisation	1,001	●	●	●
Fire in an electric line	30.05	●	●	●
Diverting of a water channel	●	374.70	●	●
<b>Total cost</b>	<b>1,311.05</b>	<b>374.70</b>	●	●

● Awaiting decision



## Environmental costs

# 11

In 2006 we have made environmental investments in new facilities valued at 6,293,732 euros, which represents 1.22 % of total investments in the transmission network.



These investments correspond to the preparation of environmental impact studies for all projects, the application of preventive and corrective measures, environmental supervision in electrical facilities under construction and the application of compensatory and environmental measures.

Also, in 2006 we have incurred expenses for environmental protection and improvement for the amount of 9,321,594.39 euros, corresponding to 2.03 % of all operating expenses.

The following table shows the evolution of environmental costs over the past three years.

#### Environmental costs (euros)

	2004	2005	2006
<b>Investments</b>	<b>1,704,464.50</b>	<b>2,074,968.98</b>	<b>6,293,732.62</b>
Engineering & construction of new facilities	1,704,464.50	2,074,968.98	6,293,732.62
<b>Expenses</b>	<b>4,893,172.86</b>	<b>5,879,716.37</b>	<b>9,321,594.39</b>
Environmental management system	24,639.79	19,811.05	7,365.73
<b>Preventive &amp; corrective measures for facilities in operation</b>	<b>3,527,413.47</b>	<b>4,387,809.48</b>	<b>7,489,289.72</b>
Prevention of contamination	121,833.00	326,713.67	305,488.98
Fire prevention	2,952,405.00	3,498,942.00	6,664,040.20
Birdlife protection	131,555.61	228,796.37	225,921.67
Envir. Improvements in facilities	166,011.00	42,441.61	188,903.42
Management of electromagnetic fields & noise	100,047.10	45,348.06	34,515.34
Waste management	55,561.76	58,144.38	70,420.11
<b>R &amp; D</b>	<b>225,315.58</b>	<b>217,744.19</b>	<b>355,327.92</b>
<b>Training &amp; Communication</b>	<b>210,386.42</b>	<b>266,392.94</b>	<b>451,197.98</b>
Envir. Training & awareness	4,606.00	17,500.00	38,130.00
Communication	205,780.42	248,892.94	413,067.98
<b>Envir. taxes and royalties</b>	<b>2,815.90</b>	<b>21,660.37</b>	<b>16,820.04</b>
<b>Expenses for staff devoted to envir. activities</b>	<b>902,601.70</b>	<b>966,298.34</b>	<b>1,001,593.00</b>



The following table shows the evolution of the percentage of environmental expenses over total expenses and total investments in the transmission network respectively.

% of investments and expenses	2004	2005	2006
Envir. Investment/total investment in transmission network	0.70	0.57	1.22
Envir. Expense/ total op. expenses	1.80	2.18	2.03



In addition to the costs indicated above, we have paid out an important sum of money corresponding to environmental taxes for setting up our electricity transmission systems in the autonomous regions of Catalonia and Extremadura.

Environmental taxes (euros)			
Autonomous region	2004	2005	2006
Catalonia	60.101,16	60.101,16	61.271,16
Extremadura	795.556,92	841.594,32	910.630,32
<b>TOTAL</b>	<b>855.658,08</b>	<b>901.695,48</b>	<b>971.902,75</b>

## Frequency of the environmental declaration

# 12

This Environmental Report has been published for the purpose of providing information to all interest groups on the environmental activities carried out by Red Eléctrica in 2006.



The Environmental Declaration is published every year, in the form of an Environmental Report, or if it is considered that no important changes have taken place since the last Declaration, as an additional chapter of Red Eléctrica's Annual Report.

The Spanish Association of Standardisation and Certification (AENOR), with headquarters at Génova 6 – 28004 de Madrid and Accredited Certifying Body Number E-V-0001, is the entity certifying that the Red Eléctrica Environmental Report complies with the requirements set forth in Regulation (EC) N° 761/2001 of the European Parliament and Council, dated March 19, 2001, permitting organisations to voluntarily join a community management and environmental auditing system (EMAS).

The next Declaration will be presented and published during the first half of the year 2008.





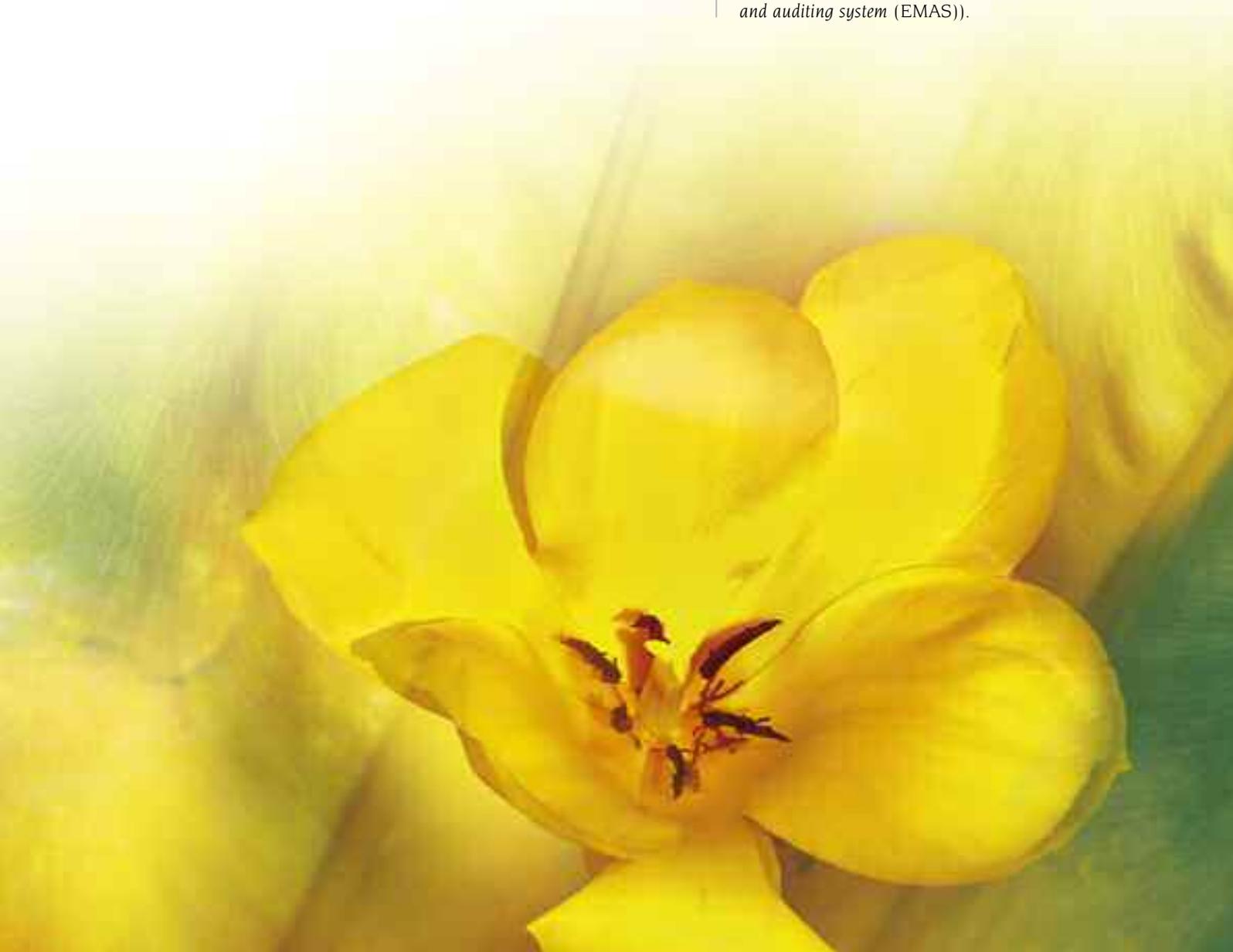
## Glossary of terms

# 13

### **Environmental aspect:**

Any element of the activities, products or services of an organisation that may interfere with the environment.

*(European Parliament and Council Regulation n.º EEC 761/2001 dated March 19 2001, permitting companies in the industrial sector to voluntarily join a community environmental management and auditing system (EMAS)).*



**Significant environmental aspect:**

All environmental aspects having or which may have a significant impact on the environment.

(UNE-EN ISO 14001:2004 *Environmental management systems. Requirements and guides for their use*).

**Environmental Audit:**

A management instrument that includes a regular, documented, systematic and objective evaluation of the organisation, its management system, and the procedures for protecting the environment with a view to facilitating operational control over practices that could have an impact on the environment and evaluates compliance of the environmental policies of the organisation, and in particular, its environmental objectives and goals.

(*European Parliament and Council Regulation n.ºEEC 761/2001 of March 19, 2001, permitting companies in the industrial sector to voluntarily join a community environmental management and auditing system (EMAS)*).



**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).

**Magnetic field:**

In a point in space, the force exerted on a live element located at that point. Expressed in amps per metre (A/m). The international measuring unit is the Tesla (T) or any fraction thereof, and in particular the microtesla (mT).

(50 Hz *Electrical and magnetic fields*. REE and UNESA, 1998).

**Nest-preventing device:**

A device formed by several elements made of galvanised steel, of different sizes, that prevents bird from building their nests and settling in the places where they are installed or on the device itself.

(Own definition of REE).

**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.

(*European Parliament and Council Regulation n.º EEC 761/2001 dated March 19 2001, permitting companies in the industrial sector to voluntarily join a community environmental management and auditing system (EMAS)*).

**Environmental behaviour indicator:**

Specific expression providing information on environmental behaviour in an organisation.

(UNE-EN ISO 14031 *Standard. Environmental Management. General Directives*).

**Place of community importance (LIC):**

A place that, based on the biogeographic region or regions where it is located, 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 contribute noticeably to maintaining biological diversity in the biogeographic region or regions in question. For the animal species occupying large areas, the places of community importance 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), of May 21 on the conservation of natural habitats and wild fauna and flora*).

**Environmental objective:**

A general environmental aim, which has its origin in the environmental policy laid down by the organisation itself and which, insofar as is possible, is quantified.



*(European Parliament and Council Regulation n.º EEC 761/2001 dated March 19 2001, permitting companies in the industrial sector to voluntarily join a community environmental management and auditing system (EMAS)).*

#### **Environmental policy:**

The general objectives and principles of action of an organisation with respect to the environment, including compliance with all the regulatory provisions related to the environment and the commitment to continuously improve the environment.

Environmental policy constitutes a framework for establishing and reviewing environmental objectives.

*(European Parliament and Council Regulation n.º EEC 761/2001 dated March 19 2001, permitting companies in the industrial sector to voluntarily join a community environmental management and auditing system (EMAS)).*

#### **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 to dispose of it.

In all cases, the items listed in the European Waste Catalogue (CER) will be classified as such.

*(Act 10/1998, pf April 21 1998, on Waste).*

#### **Bird-saving devices or spirals**

A white or orange spiral made of polypropylene (PVC) in the shape of a spindle, measuring 30-35 centimetres in diameter and with a length of 1 metre, that is wound onto the ground cable or conductor to mark it and reduce the risk of accident due to birds colliding with them.

*(Own definition of REE).*

#### **Visual simulation:**

An infographic technique (based on computer applications for graphic representation) applied to obtaining the representations of a project to give an approximate idea of what it will look like in the real future situation, and showing the elements that constitute and its integration into the execution environment.

*(Own definition of REE).*

#### **Environmental management system:**

Part of a general management system that includes the organisational structure, planning activities des, responsibilities, practices, procedures, processes, and resources necessary for developing, applying, achieving, reviewing and maintaining the environmental policy.

*(European Parliament and Council Regulation n.º EEC 761/2001 dated March 19 2001, permitting companies in the industrial sector to voluntarily join a community environmental management and auditing system (EMAS)).*

**Special birdlife protection zone (ZEPA):**

An area of community interest for the conservation of the birds listed in appendix I of Council Directive EC/79/409 dated April 2, 1979, on the conservation of birdlife.



**ANEXO**

**ESQUEMA EUROPEO DE ECOGESTIÓN Y ECOAUDITORÍA  
(EMAS)**

Eco-Management and audit scheme (EMAS)

**VDM-01/004**

Los Centros Certificados del Sistema de Gestión Medioambiental de acuerdo con el esquema europeo de Ecogestión y Ecoauditoría (EMAS) de RED ELECTRICA DE ESPAÑA, S.A. nº VDM-01/004 son los siguientes: *Activities within the scope of the Environmental Management System according to the Eco-Management and Audit Scheme (EMAS): RED ELECTRICA DE ESPAÑA, S.A. nº VDM-01/004 include the following:*

Delegación Regional Oeste CL. ZALAETA, S/N EDIFICIO REE 15002 - LA CORUÑA (A CORUÑA)	Delegación Regional Norte AV DE ENEKURU, 60 EDIFICIO REE 48014 - BILBAO (VIZCAYA)	Delegación Regional Noroeste AV PARALELO, 35 EDIFICIO REE 08904 - BARCELONA	CECORE CL. BAAC NEWTON, 13 EDIFICIO REE 28740 - TRES CANTOS (MADRID)
Delegación Regional Sur CL. INCA GARCILASO, 1 EDIFICIO REE 41992 - ISLA DE LA CARTUJA (SEVILLA)	Delegación Regional Levante CL. PUEBLA LARGA, 18 40103 - LA ELIANA (VALENCIA)	Demarcación Duero-Sil (35) Subestaciones) CR N-601, MADRID- VALLADOLID-LEÓN, Km 218 47630 - LA MUDARRA (VALLADOLID)	Demarcación Ebro (32) Subestaciones) CR ZARAGOZA-SARINERA, Km 9,2 50162 - VILLAMAYOR (ZARAGOZA)
Demarcación Mediterráneo (22) Subestaciones) CR ANTIGUA CASTELLERBAL-RUBÍ, S/N PI CAN PI DE VILAROC 08191 - RUBÍ (BARCELONA)	Demarcación Tago (24) Subestaciones) CR N-1 MADRID-BURGOS, Km 20,7 28700 - SAN SEBASTIÁN DE LOS REYES (MADRID)	Demarcación Bética (24) Subestaciones) CR SEVILLA-UTRERA, Km 17 41500 - ALCALÁ DE GUADAIRA (SEVILLA)	Dirección Operativa Sistema Eléctrico Balear CAME SÓN FANGOS Nº 100 EDIFICIO A 2ª PLANTA 07007 - PALMA DE MALLORCA (ILLES BALEARS)
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Fecha de validación: 12 de abril de 2007  
Validation Date

**AENOR** Asociación Española de  
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Por AENOR: El Director General  
On behalf of AENOR: The General Manager

**ESQUEMA EUROPEO DE ECOGESTIÓN Y ECOAUDITORÍA  
(EMAS)**

**Eco-Management and audit scheme (EMAS)**

**VDM-01/004**

La Asociación Española de Normalización y Certificación (AENOR) a través de procesos de auditoría acreditados, certifica que:

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tiene implantado un sistema de Gestión Medioambiental que cumple los requisitos del Reglamento Europeo 761/2001

*has implemented an environmental management system that complies with the requirements of the European Regulation 761/2001*

para las actividades de:

*for the activities of:*

LA INGENIERÍA, LA CONSTRUCCIÓN Y EL MANTENIMIENTO DE LÍNEAS Y SUBESTACIONES ELÉCTRICAS DE ALTA TENSIÓN, Y DE SISTEMAS DE TELECOMUNICACIONES.

LA OPERACIÓN DE SISTEMAS ELÉCTRICOS.

LA SEGURIDAD FÍSICA DE INSTALACIONES.

LOS PROYECTOS DE INVESTIGACIÓN, DESARROLLO E INNOVACIÓN TECNOLÓGICA.

LA CONSULTORÍA Y LOS SERVICIOS PROFESIONALES EN LAS ACTIVIDADES ANTES DESCRITAS.

THE ENGINEERING, CONSTRUCTION AND MAINTENANCE OF HIGH VOLTAGE, TRANSMISSION LINES AND SUBSTATIONS, AND TELECOMMUNICATION SYSTEMS.

THE TRANSMISSION SYSTEM OPERATION.

THE SECURITY OF PEOPLE, BUILDING AND FACILITIES.

THE RESEARCH, DEVELOPMENT AND TECHNOLOGICAL INNOVATION PROJECTS.

THE CONSULTING AND PROFESSIONAL SERVICES OF ABOVE ACTIVITIES.

que se realiza/n en o desde los establecimientos:

*which is/are carried out in or from the establishments:*

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y que la información incluida en la declaración medioambiental se ajusta a los requisitos expresados en dicho Reglamento y ha sido validada con fecha 2007-04-12.

*and the information included in the environmental declaration complies with the requirement of that European Regulation and has been validated on 2007-04-12.*

**Fecha de validación:** 12 de abril de 2007  
**Validation Date**

**AENOR** Asociación Española de  
Normalización y Certificación

Firma: D. Ramón NAZ PAJARES  
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This environment report have been reviewed by the Fundación del Español Urgente (Fundéu)

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# Appendix 1

## Location maps

showing the environmental processing  
and supervising of facilities being planned  
and those constructed in 2006

## Environmental processing of projected facilities

### Facilities being processed by environmental bodies

L/Aparecida-Tordesillas	L/Galapagar-Moraleja de Enmedio	L/Cabra-Guadalquivir medio
L/Bescanó-Frontera Francesa	L/Mazaricos-Tambre-Tibo	L/Cartuja-Puerto Real
E.S. Santa Llogaia	L/Segovia-Galapagar	L/La Plana-Morella
L/Boimente-Pesoz	L/Fuendetodos-Mezquita	L/Astilleros-Cacicedo
E/S in the E.S. Morata-	E.S. Muniesa	L/Litoral-Benahadux
L/La Torrecilla-Villaverde	E.S. Mezquita	L/Nueva Lada-Velilla
E.S. Villaverde	L/Santa Engracia-El Sequero	L/Interconexión Peninsula-Baleares
E.S. La Torrecilla	L/Santa Engracia-Oncala	L/Trives-Aparecida
E/S in the E.S. Gazules-	L/Salas-Grado	L/Cacicedo-Torrelavega
L/Alcores-Pinar del Rey	E/S in the E.S. Grado-L/Soto-Tabiella	L/Torrelavega-
E/S in the E.S. Gazules-	E.S. Grado	Puentes de San Miguel
L/Casares-Puerto Real	E.S. Udalla	E.S. Solórzano
E.S. Gazules	E/S in the E.S. Udalla-	E/S in the E.S. Solórzano-
E/S in the E.S. Jordana-	L/Penagos-Abanto	L/Penagos-Abanto
L/Alhaurín de la Torre-Pinar del Rey	E/S in the E.S. Riudarenes-	E.S. Treto
E/S in the E.S. Jordana-	L/Sentmenat-Vic-Bescanó	L/Treto-Solórzano
L/Bahía de Algeciras-Los Ramos	E/S in the E.S. Torrente	
E/S in the E.S. Jordana-	-L/Eliana-Catadau	
L/Pinar del Rey-Tajo de la Encantada	E.S. Torrente	
E.S. Jordana		

## Environmental supervision of new facilities under construction

New lines under construction	New substations under construction
REMO project.	Almodóvar del río
2 <sup>nd</sup> Spain-Morocco Cable Interconnection	Abanto
L/Cabra-La Roda de Andalucía	Trives
E/S in the E.S. Cabra-L/Guadalquivir Medio-Tajo de la Encantada	Brovales
E/S in the E.S. Salas-L/Narcea-Soto	Cabra
E/S in the E.S. Castellet-L/Foix-Viladecans	La Roda de Andalucía
L/Castellet-La Gornal	Huéneja
L/Casares-Puerto Real	Sant Celoni (extension)
L/Entronque in the E.S. Galapagar-Entronque in the E.S. San Sebastián de los Reyes	Escatrón (extension)
L/Castejón-Muruarte	Gazules
L/Lada-La Robla (increase of capacity)	Jordana
L/Soto de Rivera-La Robla (increase of capacity)	Segovia
E/S de la E.S. Almodóvar del río-L/Casillas-Villanueva del Rey	Totana
E/S in the E.S. Ayora-L/Cofrentes-Benejama (increase of capacity)	El Palmar
L/Gaussa-Morvedre	Ayora
L/Morvedre 400kV-Morvedre 220kV	Morvedre
E/S in E.S. Gaussa	Gaussa
L/Nueva Escombreras-El Palmar	Benejama (extension)
	Saladas (extension)
	Muruarte



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