
BIODIVERSITY
REPORT 2010

For EDP, managing biodiversity is to ensure the proper functioning of ecosystems, valuing the services and products that nature provides us and creating opportunities for the sustainable se of natural resources. We are committed to pursuing this path, in a clear and transparent manner.

This was our contribution in 2010.

We rely on you to help us to do better.

Send us your suggestions to **sustentabilidade@edp.pt**


BIODIVERSITY

## BIODIVERSITY POLICY

With the implementation of its Biodiversity Policy, **EDP** is contributing to the world's objective of reducing biodiversity loss due to human activity.

### IN PARTICULAR, EDP:

- Is aware of the sensitivity of natural ecosystems and of the pressures that these are subject to, as well as of the intrinsic value of the initiatives aimed at protecting biodiversity;
- Has significant experience in minimising the impact on biodiversity resulting from its activities;
- Wants to have an even more active role in the conservation of biodiversity and its promotion.

**EDP** deems biodiversity to be integrated in the management of its companies. The objective is to achieve an overall positive impact on biodiversity.

## TO THAT END, EDP IS COMMITTED TO:

1. Integrate the biodiversity impact assessment in all phases of its activities: project design, construction, operation and dismantlement of its energy generation and distribution infrastructures;

2. Minimise any negative impact on biodiversity arising from its activities, and promote positive impacts. When any negative impact cannot be prevented, EDP will implement consensual compensation measures, which allows the achievement of a globally positive biodiversity balance sheet;

3. Contribute to broadening scientific knowledge on the different aspects of biodiversity, in particular by supporting institutions selected in a transparent manner and in accordance with superior technical capability criteria;

4. Strengthen dialogue and partnerships on biodiversity issues with public or private entities;

5. Regularly and transparently report on its performance in relation to biodiversity, under the revision of independent bodies, and promote regular consultation to the different stakeholders, on this issue.

Executive Board of Directors, June 2007

# EDP AROUND THE WORLD

## USA
## CANADA

332 Employees
3,224 Installed capacity (MW)*
7,689 Net generation (GWh)
100% Generation from renewable sources**

## PORTUGAL

7,243 Employees
6,105,291 Electricity costumers
245,335 Gas costumers
10,781 Installed capacity (MW)*
27,565 Net generation (GWh)
60% Generation from renewable sources**
47,836 Electricity distribution (GWh)
6,843 Gas distribution (GWh)

## BRAZIL

2,430 Employees
2,740,431 Electricity costumers
1,749 Installed capacity (MW)*
7,293 Net generation (GWh)
100% Generation from renewable sources**
23,749 Electricity distribution (GWh)

**EDP** operates in the energy sector, possessing important assets in the production, distribution and sale of electricity, as well as assets for the distribution and sale of gas. **EDP** has 21,990 MW of installed capacity distributed among 13 countries. The company employs more than 12,000 people and we daily seek to meet the needs of 9.8 million electricity customers and 1.1 million gas customers, who rely on our services.

* MW EBITDA
** Hydro, wind, biomass and residues included

## FRANCE
## BELGIUM

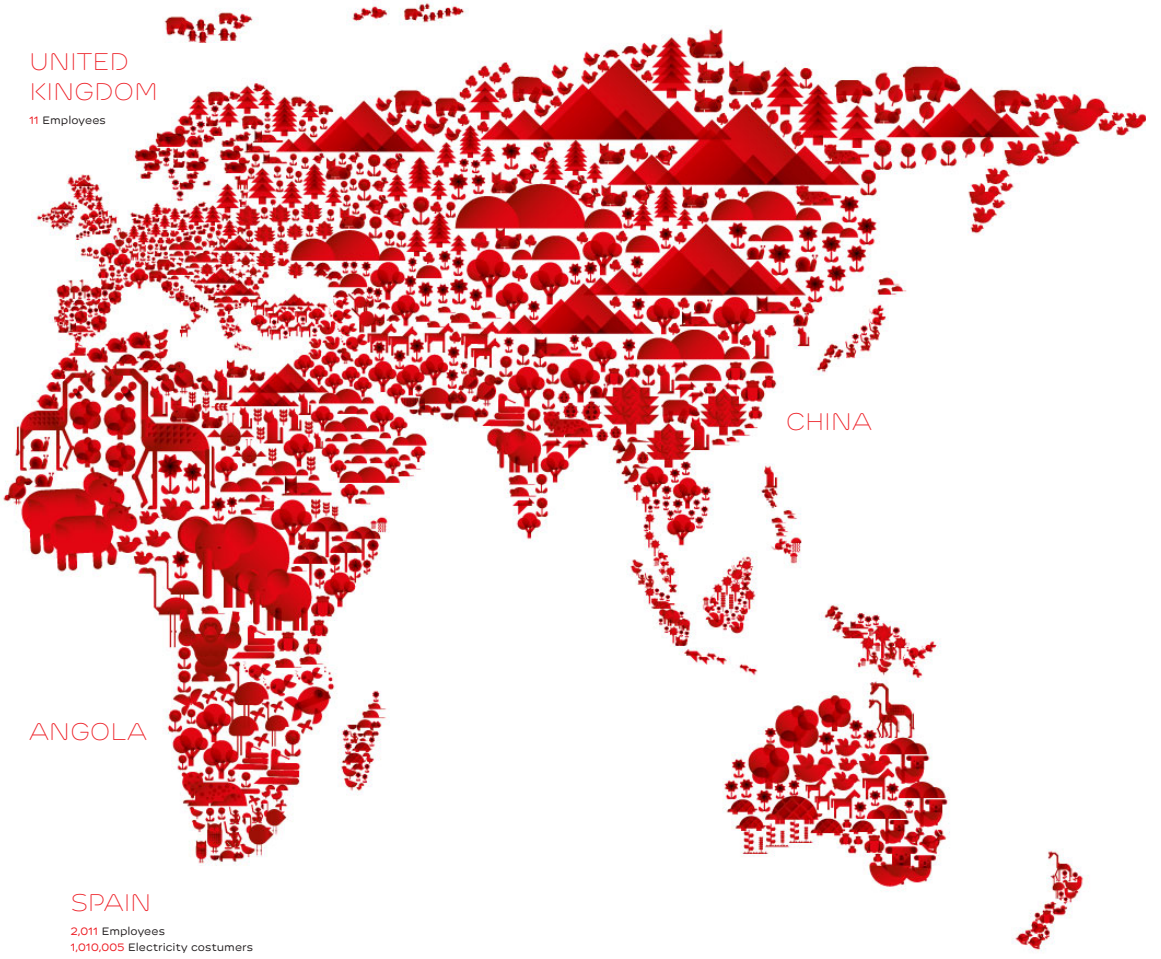
23 Employees
341 Installed capacity (MW)*
595 Net generation (GWh)
100% Generation from renewable sources**

## POLAND
## ROMANIA

32 Employees
210 Installed capacity (MW)*
209 Net generation (GWh)
100% Generation from renewable sources**

## UNITED KINGDOM

11 Employees




## SPAIN

2,011 Employees
1,010,005 Electricity costumers
823,792 Gas costumers
5,025 Installed capacity (MW)*
16,214 Net generation (GWh)
37% Generation from renewable sources**
9,320 Electricity distribution (GWh)
45,644 Gas distribution (GWh)

## ITALY

14 Employees

**EDP**'s business strategy has favoured growth through renewable energy, harnessed in particular from wind and water. The company aims to achieve 65% of installed capacity from wind and water sources by 2012, which demonstrates the importance of biodiversity as a management variable.

# STRATEGIC GUIDELINES TO 2015

In the different **EDP** Group companies, the stakeholder consultation processes identify environmental protection and biodiversity as priority issues shared by both the company, as regards the risks and opportunities that they may represent in the future, and also society, given the increasing degradation of the products and services that are provided to us by the ecosystems essential to human life. The following strategic guidelines have been defined for implementation by 2015:

## 1. Promote the inventory of biodiversity relating to the production infrastructures

| | |
|---|---|
| Assess the main impacts on biodiversity from the growth of installed wind capacity on the Iberian peninsula. | Project under review. Included in the framework of Point 4 of these strategic guidelines |
| Implement the Environmental Responsibility Law | Page 23 |

## 2. Minimise the impact on biodiversity from operating power plants

| | |
|---|---|
| Increase the number of hydroelectric power plants with unhindered instream flow, or its optimisation | Page 25 |
| Improve the passage of migratory species from and to areas upstream of the power plants (e.g. Crestuma and Touvedo, in Portugal, and Proaza, in Spain) | Page 26 |
| Increase the installed capacity with EMAS registration | Page 23 |

## 3. Guarantee measures to minimize and/or compensate for endangered national or world flora and fauna species, potentially affected by the activity of the company

| | |
|---|---|
| Define and monitor effectiveness indicators of ongoing projects<br>Improve the methodology to identify affected species | Page 13 |
| Improve the ecological value of the compensatory measures associated with new power plants | Page 34 |

| | |
|---|---|
| **4. Establish the EDP Biodiversity Chair, agreed with Porto University** | Page 40 |
| **5. Promote good management practices of the protection strips around power lines, with emphasis on areas of high ecological sensitivity** | |
| Conclude the project of EDP Distribuição, supported by ERSE | Page 54; **www.edpdistribuicao.pt > ambiente** |
| Galvanise the adaptation of good practices to the other geographical areas of the Group | Page 28 |
| **6. Promote an approach by ecosystem services within the company** | |
| Development of the EVI Project – Valuation of the Serra da Estrela hydroelectric cascade ecosystem services | Page 48 |
| Develop a corporate training module within EDP | Envisaged for 2011-2012 |
| **7. Promote initiatives to raise awareness of the biodiversity theme in society in general** | |
| Publication of the EDP Biodiversity Report | Envisaged annually. Content reinforced by publication of the sites of the companies and in the new Browsedp database, Page 53 |
| Communication Plan for the "International Year of Biodiversity" | Page 54 |
| Biodiversity Communication Plan for new projects (involvement of local community) | Page 52 |

**EDP** remains committed to achieving a minimization strategy and the promotion of biodiversity, potentially affected by its activities, with the goal of achieving a positive overall impact.

# BIODIVERSITY IN NUMBERS

**EDP** has employed a set of indicators to consolidate the information that allows it characterize the company's management in its relationship with the natural environment and provide backing for priorities of operational intervention.

| | | PORTUGAL | SPAIN | BRAZIL | USA | EDP GROUP | VAR'09 (%) |
|---|---|---|---|---|---|---|---|
| EDP MANAGEMENT IN CLASSIFIED AREAS IN 2010<br>Electricity distribution networks (km) | | | | | | | |
| HV Lines | Overhead | 843 | 39 | 64 | n.a. | 946 | 1% |
| | Underground | 10 | 0.5 | 0.13 | n.a. | 11 | -1% |
| MV Lines | Overhead | 7,701 | 788 | 3,924 | n.a. | 12,413 | 2% |
| | Underground | 743 | 29 | 10.3 | n.a. | 783 | 0.4% |
| Substations (no.) | | 18 | 11 | 12 | n.a. | 41 | -2% |
| PRODUCTION ACTIVITY | | | | | | | |
| **HYDROELECTRIC** | | | | | | | |
| Installed capacity in classified areas (MW) | | 3,123 | 723 | 0 | n.a. | 3,846 | 0 |
| Areas flooded by reservoirs (ha)(*) | | 3,426 | 260 | 0 | n.a. | 3,686 | 0 |
| Habitats undergoing recovery (ha) | | | | 876 | 0 | | 0 |
| Areas of permanent conservation (ha) | | | | 14,411 | | | 0 |
| **WIND** | | | | | | | |
| Wind farms in classified areas (ha) | | 82 | 977 | 0 | 0 | 1,074 | (***) |
| EXPENDITURE ON PROTECTION OF BIODIVERSITY AND LANDSCAPES (EUR thousand) | | | | | (**) | | |
| Investment | | 9,484 | 876 | 6,472 | 0 | 16,831 | 4% |
| Operating expenditure | | 1,073 | 1,359 | 561 | 0 | 2,992 | 8% |

n.a. Not applicable
(*) Not including Alqueva and Pedrógão
(**) Biodiversity and landscape protection costs are not separated out from other environmental matters.
(***) The EDP Group values also include 150 ha in France. The progressive collection of this information does not yet permit its comparison with previous years.

EDP POWER PLANTS IN RAMSAR SITES – PORTUGAL

| RAMSAR sites | EDP facility | Observations |
|---|---|---|
| **Sado Estuary** | Setúbal Thermoelectric Power Station | Adjacent. Located downstream of the classified area. |
| **Tejo Estuary** | Barrerio Thermoelectric Power Station | In the process of being decommissioned. Page 37 |
| | Fisigen Cogeneration Power Plant | Located in an industrial area. |
| | Energin Cogeneration Power Plant | Located at the edge, upstream of the classified area |
| **Serra da Estrela** | Serra da Estrela Cascade (mini-hydro plants) | Set of hydroelectric power plants built in the first half of the 20th century. |
| **Mondego Estuary** | Lares Natural Gas Combined Cycle Power Plant | Adjacent. Located approximately 3 km upstream of the classified area. |

The fauna potentially threatened by new power plants are identified by means of relevant environmental impact assessment procedures. This list is updated annually and it includes a set of decision-making criteria on the establishment of partnerships for the development of conservation plans or scientific studies associated with biodiversity. Visit **www.edp.pt >Sustainability > Biodiversity** for more details.

# OPERATIONAL MANAGEMENT

## OPERATIONAL MANAGEMENT

Biodiversity is one of the components considered at all the stages of a new project. EDP's goal is to obtain in the long run a positive overall environmental balance as a result of the impact generated by its activity.
Hence, when the negative environmental impacts may not be avoided or minimized, EDP fosters a range of projects that directly or indirectly aim to compensate for that impact.

### PLANNING AND DESIGN

The growth of the installed capacity of the EDP Group is obtained by the acquisition of assets and through their construction. Environmental considerations, in particular the impact on biodiversity, are assessed in both cases and prevented whenever possible, in the context of a better alternative.

## FUTURE POWER PLANT?

### By Acquisition

The due diligence procedures include the identification of Corporate Assessments of environmental liabilities

Analysis of the location regarding the proximity to sensitive ecosystems, such as:

- Ramsar sites and otherswetlands, such as marshy areas;
- Natura 2000 Network;
- National protected area networks;
- Important Bird Areas (IBA)

### By Acquisition

Included in national energy plans and strategic environmental assessment, if these exist.

Summary description of the location(s), in order to identify their ecological sensitivity

Environmental Impact Assessment Procedure, or Environmental incidence study, depending on the scale and project sensitivity

Additional studies: In accordance with the specificnature and scale of the project

Final selection of the site and design adjustment

Interaction/ collaboration with external entities

Fig.1 - Environmental factors weighed up in the selection of a new project

In November 2011, the International Hydropower Association (**www.hydropower.org**) published a Sustainability Assessment Protocol for hydroelectric power plants. The assessment focuses on the economic, financial, social and environmental aspects of the project, analysing the following, inter alia: the impact on biodiversity and invasive species, erosion and sedimentation, waste, noise and air quality, preparation and filling of the reservoir, etc. EDP is studying its application to new hydro projects, beginning with the capacity increases of Picote and Bemposta.

## OPERATIONAL MANAGEMENT

A manual for the preliminary assessment of environmental limiting factors will be published in Portugal during 2012 to support decision-making on typical **EDP Distribuição** projects, developed under the Plan for the Promotion of Environmental Performance (PPDA), funded by the Energy Services Regulatory Entity (ERSE).
This manual aims to develop and implement a decision-making support model that includes the environmental component right from the planning stage, extending it to the construction phase and operation of the distribution network.
The use of this manual is expected to provide early warning of conflicts in projects likely to have negative effects on the environment.
5 pilot projects are currently underway that will test and validate the proposed methodology.

### CONSTRUCTION

The construction of a new power plant will incorporate the set of mitigation measures identified during the environmental impact assessment. **EDP** has defined internal guidelines for projects not covered by such strict regulatory frameworks, which seek, in order of importance, to prevent, minimize and restore or recover areas damaged due to construction work. During 2010, more than 800 environmental studies were conducted during the development, construction and operation of power plants, the majority of which are at the development and design stage.

Good practices for the construction of wind farms and hydroelectric plants can be found at:

- **www.edp.pt > sustainability > environment > impact assessment**

- **www.a-nossa-energia.edp.pt > social responsibility and environment > minimization and compensation of impacts**

At the end of 2010, 649 MW of wind power was under construction (480 MW in Europe, 99 MW in the USA and 70 in Brazil), 941 MW of hydroelectric power in Portugal and 360 MW of thermoelectric power (the Pecém coal-fired plant, page 35).

## Some case studies:

### Tramandaí Wind Farm, Brazil

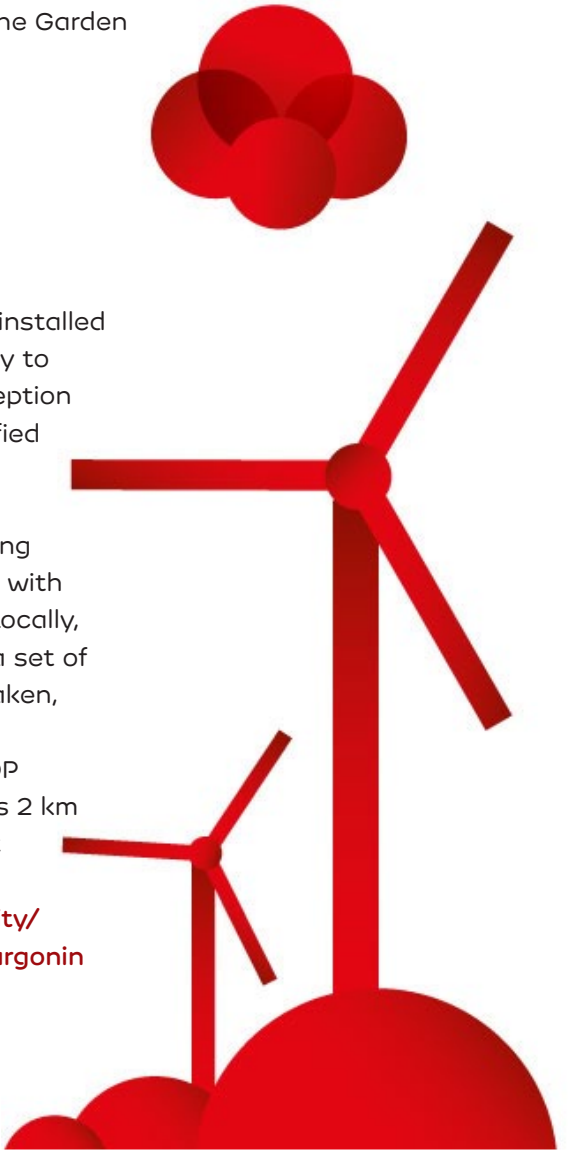
This wind farm with 70 MW of installed capacity consists of 31 towers, distributed over 797.53 ha of land of high ecological sensitivity, which has been under enormous urban planning pressure. Its construction was accompanied by a series of minimization measures, particularly with the fencing off of the area, aimed at the preservation of the dunes that are characteristic of the region.

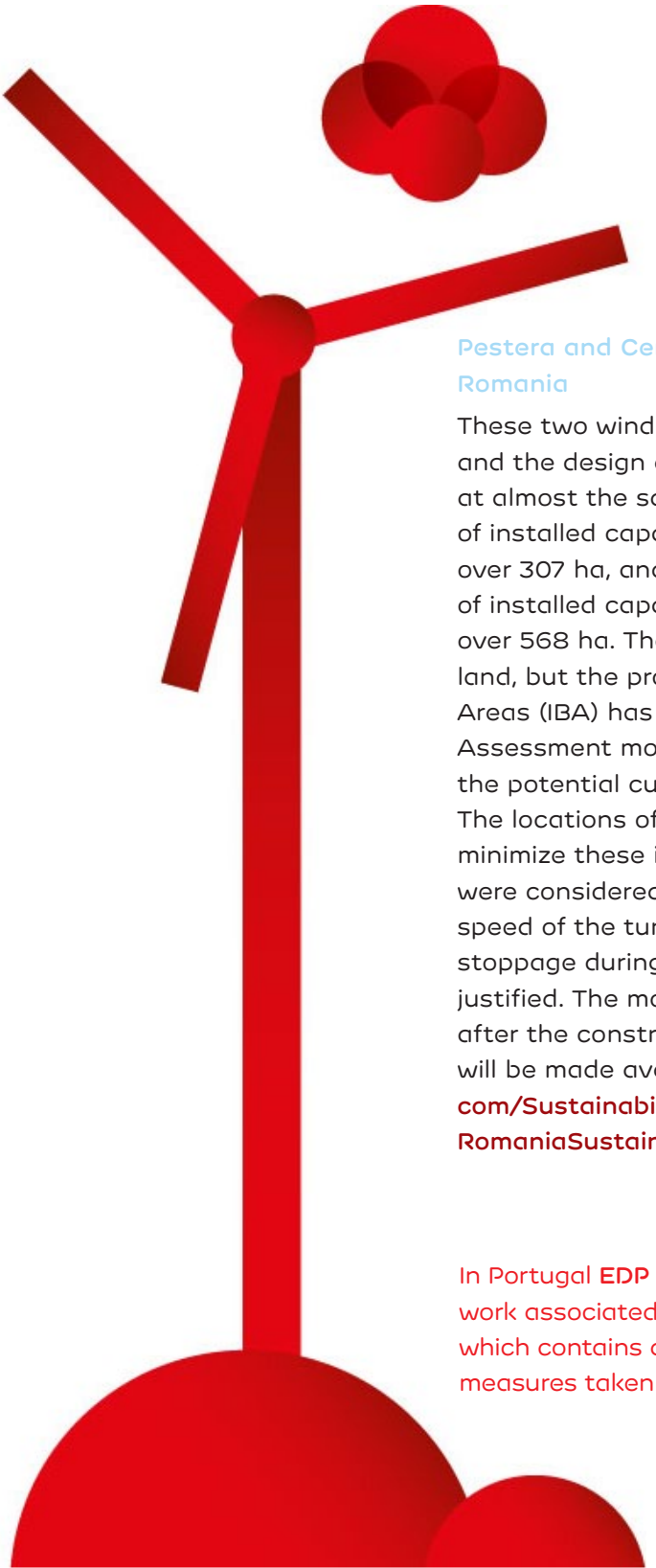
## OPERATIONAL MANAGEMENT

During construction plans to rescue and protect sensitive wildlife species (white-tuco-tuco and otter) were drawn up, adjusting the location of the electricity distribution lines and transplanting threatened flora species of the region. The environmental compensation was provided to the Conservation Unit of Rio Grande do Sul state: The Garden Forest. A monitoring plan of the fauna will be conducted for the next four years to gauge the effectiveness of the measures adopted.

### Margonin Wind Farm, Poland

This wind farm consists of a total of 120 MW of installed capacity, spread over 60 towers with a proximity to conservation areas greater than 6 km. The exception is the power line which will cross an area classified as Natura 2000 Network, over a distance of 30 Km. To minimize the impacts, the work stopped during the nesting period, the line will travel along the corridor of an old line and it will be provided with protection against electrocution and collision. Locally, the position of the turbines was adjusted, and a set of monitoring activities will continue to be undertaken, especially considering the potential cumulative impacts arising from another farm owned by EDP Renováveis, the Pawlowo wind farm. This farm is 2 km from Margonin. Information on the development of the monitoring plans for these farms can be found at: **www.edprenovaveis.com/Sustainability/EDPRintheCommunity/PoloniaSustainability/Margonin**





## Pestera and Cernavoda wind farms, Romania

These two wind farms are 9 km apart, and the design and construction occurred at almost the same time. Pestera has 90 MW of installed capacity, divided among 30 towers over 307 ha, and Cernavoda has 138 MW of installed capacity divided among 46 turbines over 568 ha. The land is essentially agricultural land, but the proximity to parks and Important Bird Areas (IBA) has made the Environmental Impact Assessment more demanding, particular due to the potential cumulative impacts to birds and bats. The locations of the farms were adjusted to minimize these impacts, and mitigation measures were considered, such as a reduction in the speed of the turbines, or even their temporary stoppage during migratory periods should such be justified. The monitoring of the birds will continue after the construction phase and the results will be made available at: **www.edprenovaveis.com/Sustainability/EDPRintheCommunity/RomaniaSustainability**

In Portugal **EDP** has a website for the monitoring of work associated with new hydroelectric power plants, which contains a summary of theenvironmental measures taken **www.a-nossa-energia.edp.pt**

# OPERATIONAL MANAGEMENT

## OPERATING

In relation to the overall activities of the Group, all power plants have an environmental licence to operate, which is reviewed with the frequency required by the regulatory frameworks of the different countries. These licences are guaranteed by compliance with a set of requirements of an environmental nature for each facility and verified by external entities, embodied in certified environmental management systems. In the operational phase, ecosystems surrounding the new power plants undergo constant monitoring and, where appropriate, these measures are supplemented with environmental compensation.

## ENVIRONMENTAL CERTIFICATION AND MANAGEMENT

The **EDP** Group is certified by ISO 14001:2004, a corporate environmental management system of the environmental policies and strategic plans, environmental information and the environmental performance of the companies of the Group. This system permits liaison between corporate policies and operational practices adjusted to the different realities of the company. The certification of environmental management systems has been fostered within the Group and biodiversity is one of the aspects considered in the identification of significant environmental impacts.

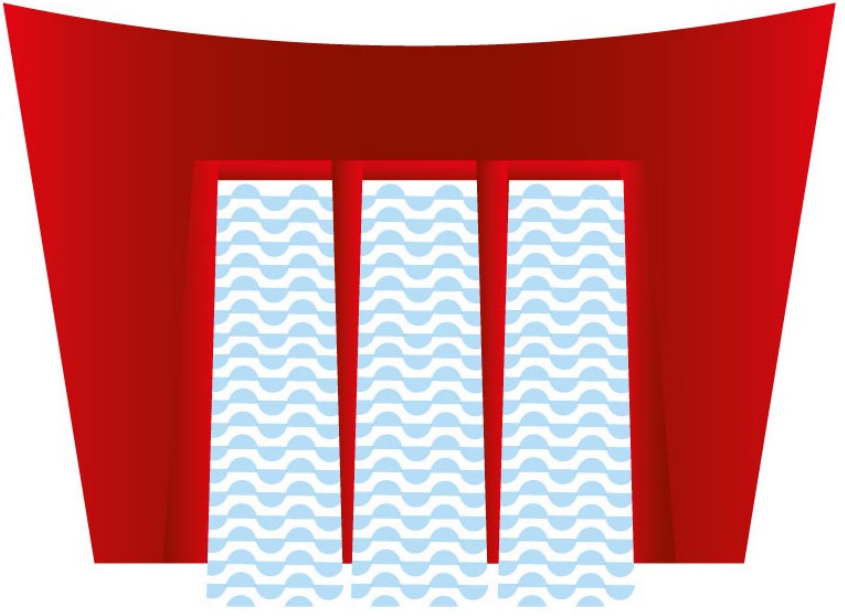
Where appropriate, plans are defined for continuous improvement in order to minimize impact.
At the end of 2010, 69% of the electricity generation activity, 100% of gas distribution activity and 2.8% of the distribution activity of the **EDP** Group were certified according to ISO 14001:2004. 28% of **EDP**'s installed capacity is also registered with the European EMAS - Eco-Management and Audit Scheme. Internally, **EDP** has implemented a Sustainability Information System based on an IT platform, to collect and consolidate the information required for controlling environmental management and sustainability based on indicators of the standards published by GRI - Global Reporting Initiative.

## ENVIRONMENTAL RESPONSIBILITY

**EDP** established financial guarantees in 2009 which enable the company to take environmental responsibility for preventive measures and to repair damage to the the environment, particularly biodiversity, the water and soil, in anticipation of that stipulated in the new Environmental Responsibility Directive.

## OPERATIONAL MANAGEMENT

Given the known difficulties in the appearance of insurable products (lack of data, lack of experience, cost, etc.) **EDP** has voluntarily participated in the assessment of the environmental risks to its infrastructure since 2008, in order to gain experience and contribute to the improvement and/or development of the national interpretative guidelines envisaged in the Directive.
Of note is the development in Spain of an assessment of the environmental risk of the Soto, Castejon and La Barca plants, which include an assessment of the environmental damage in accordance with the ecosystems affected by any damage in each risk scenario. The goal is to determine the normal status of habitats, establish management practices and minimize the necessary risks, preventing their damage, both in the operating stage and during a potential environmental emergency. These plants used the official inventories of the fauna and flora of the autonomous communities for their surveys, as well as other descriptive documents of those locations, catalogued as Places of Community Interest. The inventory of Tanes hydroelectric plant is expected to be completed in 2011, which will permit the establishment of a single methodology for all the remaining hydroelectric plants, as well as the two waste-fired power plants, Sinova and Bioener. All of these studies will include supplementary field work and they will be made publicly available.

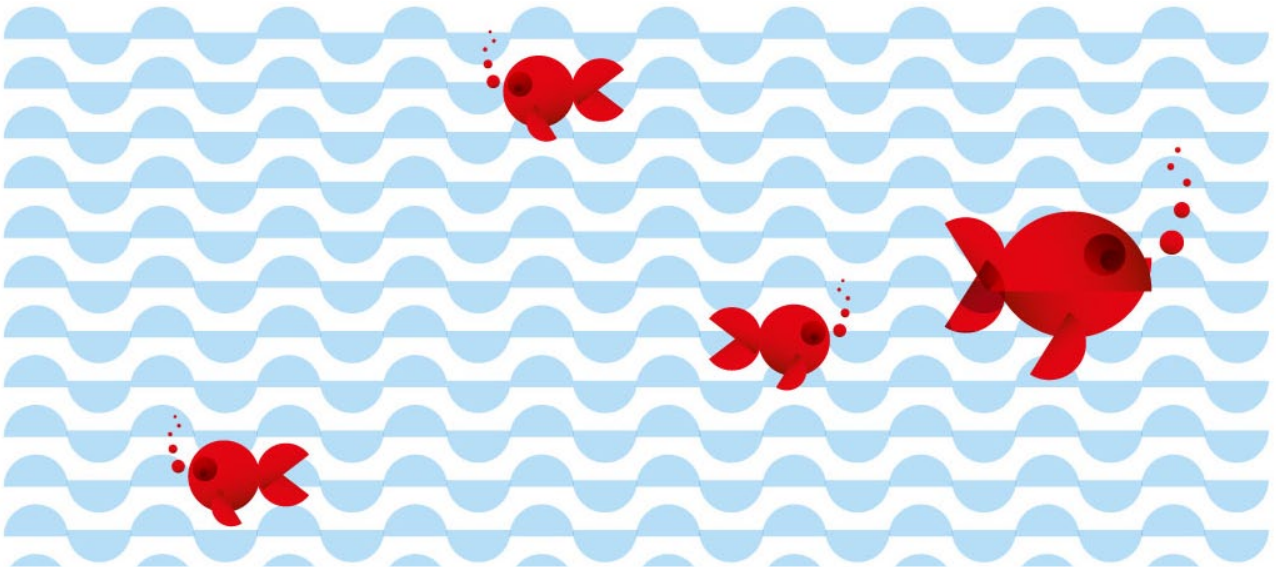


## INSTREAM FLOW

The instream flow can be defined as the minimum flow necessary for a water course on which an impounding infrastructure (dam or weir) has been built. It is designed to ensure the conservation and protection of the downstream ecosystems. The control of the instream flow is of particular relevance at hydroelectric plants with reservoirs compared to those of river power plants, because as the latter have little or no storage capacity, a flow on the water course is maintained through the operation of the generator sets.

## OPERATIONAL MANAGEMENT

In Portugal, **EDP Produção** operates various hydroelectric plants that do not have instream flow control devices on their dams because they were not provided for in their design. In some cases they are more than 50 years old, or they have devices of limited capacity. There is an ongoing plan to implement instream flow regimes in all hydroelectric plants with reservoirs, as agreed with the competent authority. The alteration of the instream flow control devices of the Fronhas and Alto Rabagão dams is currently underway.
In Spain, 100% of the hydroelectric plants have instream flow devices, which are currently being reviewed under the Water Framework Directive.



In recent years, new fishways have been built at hydroelectric plants already in operation, on the company's own initiative (as was the case with Proaza and Priañes, in Spain) and also through agreements with the competent authorities, as at Furacon and Soto. In the latter cases, the work was managed by the administration, and **HC Energía** ensures the passage of the flow for its proper continuous operation.

In Brazil, the new hydroelectric power plants of Peixe Angical (upstream) and Lajeado (downstream) maintain the monitoring of their fish ladders.

The fish ladder at Lajeado is currently closed, on the recommendation of Instituto Natureza do Tocantins, until the completion of the studies on the fish fauna of the stretch between Lajeado and Peixe Angical. The monitoring of the functioning of the fish ladder at Peixe Angical focuses primarily on the downstream movement of fish and conclusions are expected in 2012.

# OPERATIONAL MANAGEMENT

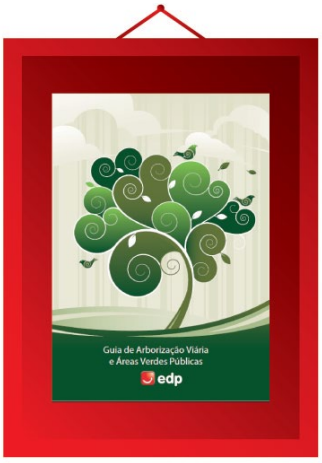
## ELECTRICITY NETWORKS

The activity of electricity distribution requires the maintenance of a safety strip to protect the power lines, resulting in numerous situations of periodic intervention on vegetation lying within the boundaries of the strips.
In recent years, this activity has been given increasing attention and initiatives are in progress in the three distribution companies to minimize the environmental impact of such interventions:

**EDP Distribuição:** The Manual for Sustainable Management of the Protection Strips of the Electricity Distribution Network, financially supported by ERSE, will be published in 2012. This project is in progress in partnership with the Faculty of Science of Porto University, the Lisbon Technical University and Florasul, and it is accompanied by the National Forest Authority and the Institute for Nature Conservation and Biodiversity. 30 pilot studies inside and outside areas with nature protection status will be completed by the end of 2011, giving a total intervention area of approximately 562 ha, in order to validate the management actions proposed in the Guide, as well as monitor the biodiversity gains obtained. The Manual of Good Practices for Intervention on the Fuel Management Strips of the Secondary Network is also in the final stages of preparation. This latter manual was created in order to reduce the surface area covered by large fires while simultaneously protecting power lines.

The aim of this manual is to define a set of guidelines to ensure compliance with portuguese legislation while also protecting the biodiversity of places.

## OPERATIONAL MANAGEMENT



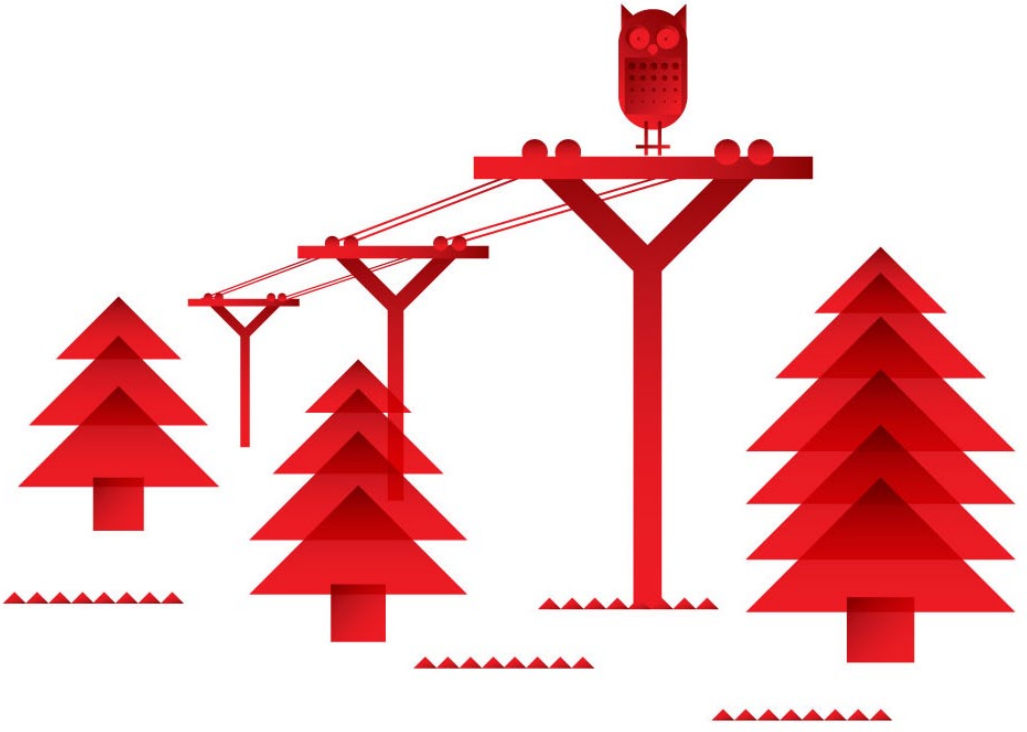

**EDP no Brasil:** The Technical Cooperation Agreement with the Instituto de Defesa Agropecuária e Florestal – IDAF is maintained, which establishes criteria for intervention on protection of electricity networks' strips during the expansion and maintenance of the electricity system of **EDP Escelsa**, thereby ensuring the minimization of any impact on biodiversity, while safeguarding an area of 575 km of protection strips as a result. A Guide to Tree Planting has also been published, to ensure the correct handling of trees in urban areas, making available to both professionals of the area and also public institutions a set of good vegetation management practices, especially those associated with maintaining the safety of electricity distribution lines.
**EDP Bandeirante** has concluded agreements with some local councils aimed at promoting urban biodiversity, through incentives for the production of seedlings in municipal nurseries for subsequent planting in the municipalities.

**HC Energía:** Under the cooperation agreement with the Área de Ingeniería Agroforestal (Department of Biology of Organisms and Systems of Oviedo University), the comprehensive Manual for Cutting, Pruning and Deforestation in the right of passage areas of the power lines of **HC Energía**.
The goal is to define a set of good maintenance practices for these strips of land, ensuring the minimization of impact on the natural environment, including:

- Thinning, ensuring soil is not exposed to reduce the risk of erosion;

- The controlled use of phytocides applied exclusively on invasive species and never close to water courses, agricultural areas and natural areas holding conservation status;

- Respect for indigenous vegetation, carrying out specialist pruning so asto ensure the safety distance, without loss of local biodiversity.

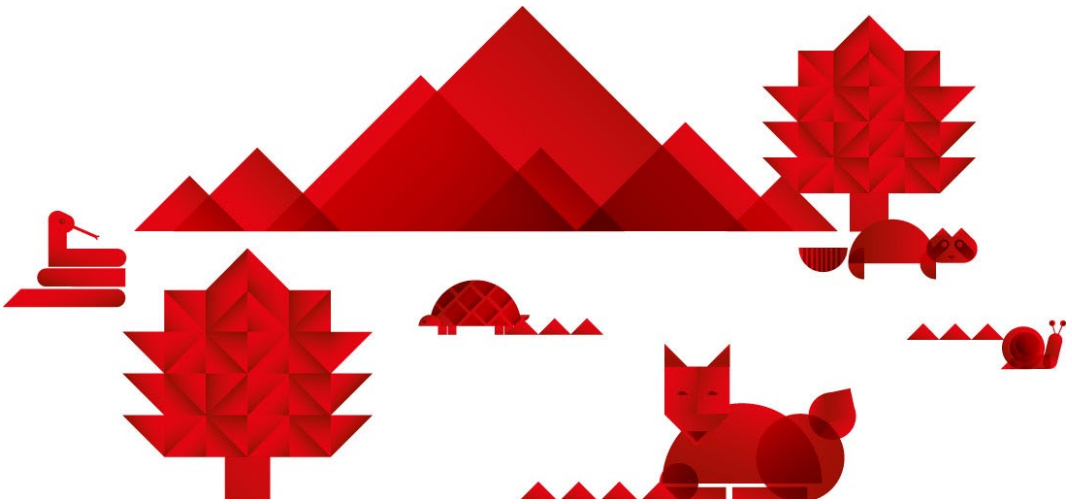


# OPERATIONAL MANAGEMENT

## ENVIRONMENTAL COMPENSATION

The process of environmental impact assessment of a new project may include compensation measures, in addition to the mitigation measures defined by the competent authorities.
In Portugal, all new hydroelectric power plants have associated compensation measures, summarized in the following table.

More detailed information on the evolution of these projects can be found at
**www.a-nossa-energia.edp.pt**



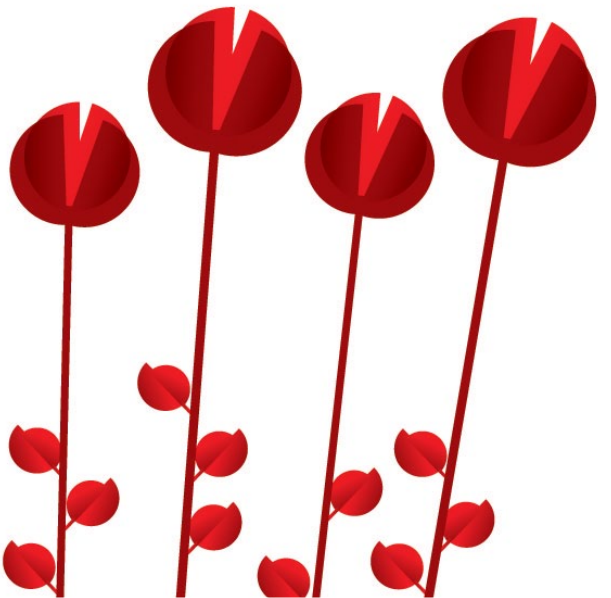
## COMPENSATION MEASURES FOR THE LOSS OF BIODIVERSITY ARISING FROM NEW HYDROELECTRIC PLANTS IN PORTUGAL

| NEW POWER PLANTS | PRINCIPAL COMPENSATION MEASURES ENVISAGED |
|---|---|
| Baixo Sabor | Creating a Compensation Habitat in the Ribeira Vilariça |
| | Enhancement and recovery of habitats of tributary rivers |
| | Enhancement of the riparian corridor of the middle and upper River Sabor and River Maçãs |
| | Protection of development of priority habitats |
| | Restoration and creation of shelters and habitats for bats |
| | Conservation programmes for the otter, water vole, and the Iberian wolf |
| | Protection and enhancement programme for rupicolous birds in the north-east transmontana region |
| | Protection and enhancement programme for reptiles, amphibians and invertebrates in the River Sabor valley |
| | Creating an Environmental Interpretation and Animal Recovery Centre |
| Foz Tua | Maintenance of riverside vegetation downstream of the dam |
| | Improvement and restoration of the natural conditions of the rivers Tua and Tinhela |
| | Increasing river flow connectivity on the middle and lower section of the River Douro |
| Fridão | Creation of spawning areas in the main tributaries of the River Tâmega |
| | Recovery/enhancement of habitats |
| | Recovery of natural and semi-natural forests and the creation of Integral Reserves |
| | Creation of artificial shelters for bats |
| | Invertebrate conservation programme |
| Venda Nova III e Salamonde II | Control and monitoring of the Acacia dealbata |
| | Restoration and monitoring of habitats of the "mixed forest", "higroturfous woods" and "riparian gallery" types, preferably in-situ |
| Alvito | Promotion of fluvial continuity |
| | Fostering/Promotion of riparian habitats |
| | Fish species translocation plan |
| | Control of invasive water species |
| | Restoration of Mediterranean woodlands |
| | Creation of feeding locations for the black stork |
| | Creating bat shelters |

## OPERATIONAL MANAGEMENT

The partnership voluntarily established with CIBIO – Centro de Investigação em Biodiversidade e Recursos Genéticos [Biodiversity and Genetic Resources Research Centre] remains in force, which is for scientific advice on the whole process in order to maximize the effectiveness of ecological measures to implement on the ground.
In addition to these measures, **EDP** is also required to provide annual financial compensation on many projects for the loss of natural assets and their conservation.
For the new hydroelectric plants of Baixo Sabor and Foz Tua, **EDP** contributes to a Nature and Biodiversity Conservation Fund a total of 3% of the net average annual production, estimated in value at an average of 800 000 euros/year. The first contribution is made in the first year of construction.

In Brazil, the financial compensation is a established additional practice, with the plant at Pecém a recent such example:



## Pecém I

The Porto do Pecém I Thermoelectric Power Plant forms part of the Brazilian Government's Accelerated Growth Programme and it aims to meet the increased consumption of electricity in the north-east region. This coal-fired power plant will help to ensure the security of electricity supply in the country. The land area assigned for the project is 349 ha, of which only 70 hectares are directly affected by the plant infrastructure. Environmental impact is a major concern of the company, which has planned investments totalling around 30% of the total budget on environmental control equipment, including emissions and waste. With an installed capacity of 720 MW[1], its entry into operation is scheduled for 2012.

Compensation Measures: The highlight of the set of measures implemented is a donation of 120,000 seedlings of species native to the region and financial resources equivalent to 0.5% of the total cost of the plant for the improvement of existing Conservation Units.

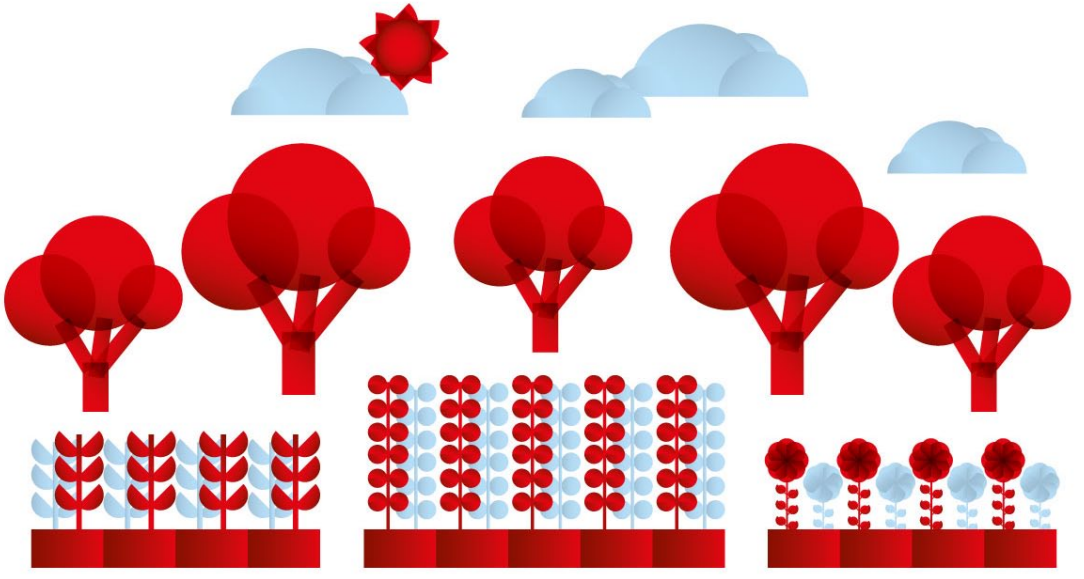
Beneficiaries: Sítio Fundão State Park; Cocó Nature Park; Pecém Environmental Station; and the Serra de Baturité Environmental Protection Area.

Environmental Monitoring: The project has adopted 17 Environmental Monitoring Programmes with initiatives that include the recovery of damaged areas, the monitoring of wildlife, noise, air quality and water. Some programmes also focus on socio-economic aspects of the municipality of São Gonçalo do Amarante, such as the Urban Structure Adequacy Plan and the Technical Capacity Building and Use of Local Labour.

[1] Power plant developed in partnership with MPX. EDP's share of the installed capacity is 360 MW (EBITDA)

## OPERATIONAL MANAGEMENT

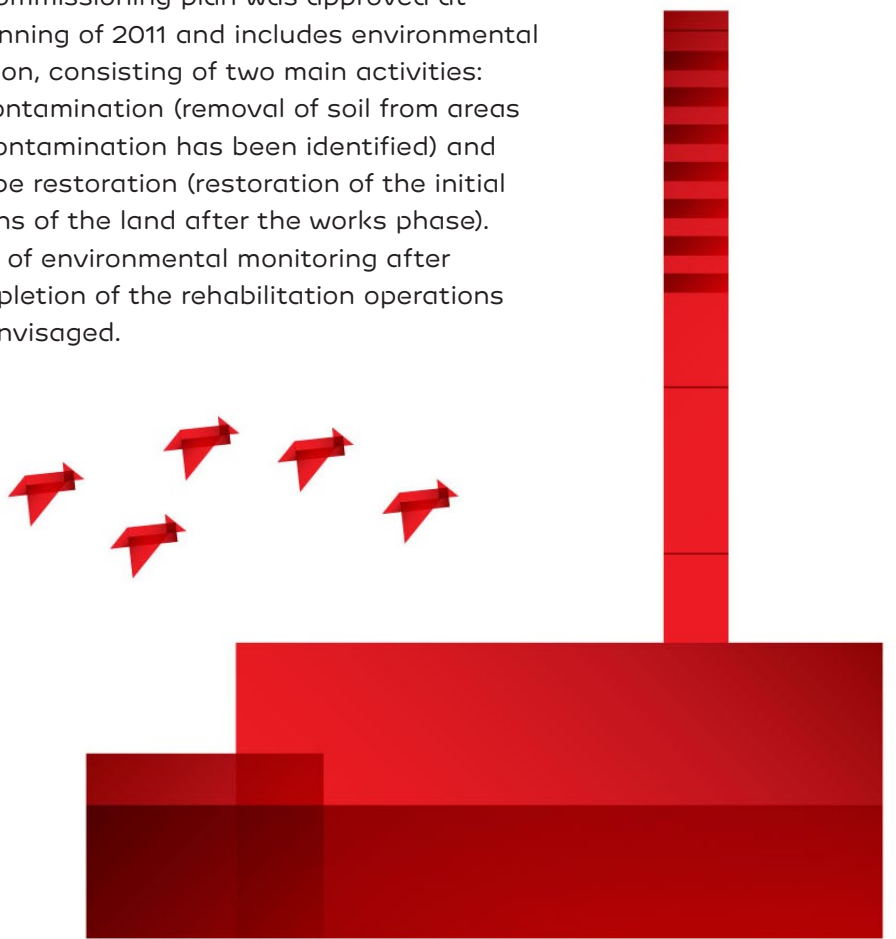
Also during 2010, the reforestation and recovery of damaged areas were undertaken essentially in relation to the production activity. At the Mimoso, Paraíso, São João I and II and Coxim hydroelectric plants, the restored areas totalled 115 hectares, while at the PeixeAngical plant the conventional reforestation areas, enrichment and regeneration areas totalled 247 hectares.
At Investco there was maintenance of the areas previously recovered (about 90 hectares), and reforested (about 380 hectares).



The programme was virtually completed in 2009, and 2011 will see the reforestation of approximately 6 hectares. The distributor **EDP Escelsa** reforested 3.73 hectares.

## DECOMMISSIONING AND ENVIRONMENTAL RESTORATION

**EDP** currently has one thermoelectric power plant (cogeneration) in the process of decommissioning: the Barreiro Power Plant in Portugal.
This power plant is located on the Tagus estuary in an industrial zone, and its owner, the Port of Lisbon Authority, aims toretain some of the existing structures.
The decommissioning plan was approved at the beginning of 2011 and includes environmental restoration, consisting of two main activities: soil decontamination (removal of soil from areas where contamination has been identified) and landscape restoration (restoration of the initial conditions of the land after the works phase).
A period of environmental monitoring after the completion of the rehabilitation operations is also envisaged.



# SUPPORT TO SOCIETY

# SUPPORT PROVIDED TO SOCIETY

## EDP BIODIVERSITY CHAIR

The creation of the "**EDP**-Biodiversity" chair was completed during 2010, thus closing the candidate selection process by an independent international jury. During 2011, the projects to be developed in areas of mutual interest to **EDP** and Porto University will be defined in greater detail.

## EDP BIODIVERSITY FUND

By the end of 2010, **EDP** had already allocated two million euros of the 2.5 million euros it committed to in 2007. The goal is to help to develop scientific knowledge and promote the improvement of natural ecosystems, focusing on the areas most relevant to the development of the company's activities in the regions where it operates.

One criterion for the selection of projects is based on the number of technical and scientific partners involved, promoting dialogue and sharing knowledge as well as practical collaboration between different institutions. In all, the following institutionsparticipate in projects supported by the **EDP** Biodiversity Fund:

1. Local and regional movements of the Lesser Kestrel

2. Bryophytes Atlas

3. Conservation of the River Lamprey and Brook Lamprey

4. Faia Brava Reserve

5. Conservation of the Biodiversity of Temporary Ponds

6. Conservation and enhancement of threatened endemic flora in Portugal

7. Atlas of Wintering and Migratory Birds of Portugal

8. Description of genetic heritage of the White Willow

9. Cultibos Yerbas i Saberes Terras de Miranda

10. Findkelap - sea floor forests

## SUPPORT PROVIDED TO SOCIETY

### 2008

| PROJECT | GOAL |
|---|---|
| Steppe Life Project[1] | Promote the conservation of three threatened steppe bird species in the Baixo Alentejo region: Bustard; Little Bustard; Lesser Kestrel |
| Local and Regional Movements of the Lesser Kestrel | Drawing up an overhead power line collision risk map for the Lesser Kestrel in the Alentejo region |
| Atlas of Bryophytes | Draw up a Red List of Bryophytes of Portugal and identify the priority areas for their conservation |
| National River Lamprey and Brook Lamprey Conservation Plan | Draw up a National Conservation Plan for the two species |

[1] Project co-financed by the LIFE – Nature Programme of the European Commission. Only monitoring is funded by the Biodiversity Fund. The application to the LIFE programme precedes the acceptance of applications to the Fund.

| PROGRESS REPORT | CONCLUSION |
|---|---|
| Corrections to 21 km of lines in the Castro Verde nature zone have already been made, including the installation of new anti-collision signalling technology.<br>Preliminary figures from the monitoring of 22.5 km indicate that the signals of the basic spiral-type Bird Flight Diverter (BFD) are only very poorly effective for the Bustard and Little Bustard.<br>The project can be monitored at **www.lifeesteparias.pt** | 2012 |
| With two years of data collection and more than 70,000 locations obtained from 31 radio-marked Little Bustards, the data are currently being processed and we can already highlight the following provisional results:<br>• Seasonal movements occur at night, which might help explain the high vulnerability for collision with overhead lines;<br>• The risk of collision increases during the summer. | 2011 |
| This project, in its final preparation phase:<br>• Concluded that 45% of bryophytes are included among threatened species;<br>• Drew up a proposal of the Bryophytes Red List of Portugal;<br>• AUpdated the chorological knowledge of the different bryophytes selected as threatened and included on this Red List;<br>• IIdentified the priority areas for conservation of the selected species and proposed specific conservation measures. | 2011 |
| The preliminary results indicate:<br>• Confirmation of the high threatened status of the two species;<br>• That they occupy a decreased distribution area in Mainland Portugal;<br>Criteria were also defined and the priority water courses for the conservation of the two species were identified. | 2011 |

## SUPPORT PROVIDED TO SOCIETY

### 2009

| PROJECT | GOAL |
|---|---|
| Faia Brava Reserve | Promote the conservation of nature, aimed at sustainable management of a private nature reserve, involving local NGOs and the wider community. |
| Conservation of the biodiversity of temporary ponds | Development of a network of micro-reserves and a nationwide educational programme |
| Conservation and enhancement of threatened endemic flora in Portugal | Conservation of rare and endangered plant species in Portugal and their use, especially in medical applications |

| | PROGRESS REPORT | CONCLUSION |
|---|---|---|
| | The Faia Brava Reserve was classified in December 2010 as the first private protected area of the country.<br>All recovery action and infrastructure construction are completed.<br>The ecological restoration has so far provided for: the recovery of 3 km of riparian galleries and recovery of approximately 20 ha of cereal agricultural land, which support the conservation and recovery of local populations of red partridge and wild rabbit.<br>4 inventories have been completed (invertebrates, flora, reptiles and amphibians, mammals), and a total of about 600 species identified so far. | 2011 |
| | This project has been reported at the website **http://sites.google.com/site/charcoscombio/**, and also through the educational project "Charcos com Vida" **(www.charcoscomvida.org/)**, with the current number of supporting entities exceeding 70.<br>Sites have been selected to create new micro-reserves, which have been the focus of monitoring and educational promotion activities, and contacts have been made in order to formalize agreements for the creation of these areas. | 2011 |
| | 12 endemic species were studied, most of which are endangered, and the seeds stored in the A. L. Belo Correia Seed Bank.<br><br>Methods have been developed for in vitro multiplication and the optimal germination conditions identified for the seeds of 6 species.<br><br>Chemical characterization and the antifungal and antioxidant activities of several species have been recorded.<br><br>Studies of genetic diversity have begun. | 2012 |

## SUPPORT PROVIDED TO SOCIETY

### 2010

| PROJECT | GOAL |
|---|---|
| Wintering and Migratory Birds Atlas of Portugal | Promote knowledge regarding the distribution and relative abundance of bird species during the post-nuptial migration and winter period, throughout Portugal. |
| Description of the genetic heritage of native riverside trees: and application to the White Willow | Promote the building of knowledge regarding the genetic diversity of populations of native riverside tree species contributing to the success of conservation activities and the restoration of such habitats: application to an endemic species, *Salix salviifolia*. |
| Cultibos Yerbas i Saberes (...) em Terras de Miranda | Preserve ethno-botanical heritage; Involve people in the management and conservation of biodiversity; Develop biodiversity management and conservation demonstration areas . |
| FINDKELP – Sea floor forests | Promote knowledge of the species of kelp and those species depending on the kelp; building management guidelines based on instruments of public participation; scientific dissemination. |

(1) In Mirandese, translation: 233 taxa of vascular plant s have been surveyed so far, 37% of which correspond to wild plants and 63% to cultivated plants. All associated traditional knowledge and practices and 353 names and terms of local nomenclature have been registered. In 2011 several publicity initiatives were organised and seeds collected from crops at risk of disappearing, which were then sent to the Portuguese Plant Germplasm Bank.

| | PROGRESS REPORT | CONCLUSION |
|---|---|---|
| | A website has been created to publicise the project **(www.spea.pt/pt/estudo-e-conservacao/censos-de-aves/atlas-aves-invernantes-e-migradoras/)**; 170 volunteers have signed up to help and they will start the field work in August 2011. | 2013 |
| | This project is under preparation, which began in October 2011, given the need to adjust the actions to the biological cycle of the species being studied, particularly the phenology of *Salix salviifolia*. | 2013 |
| | Fórun ambentariados, até hoije, 233 taxa d'arboles i yerbas basculares, de las quales 37% son árboles i yerbas selbaijes i 63 % árboles i yerbas de cultibo. Registrórun-se todas las práticas i saberes tradicionales associados i 353 nomes i termos de ls chamadeiros de las tierras. Yá an 2011 fórun ourganizadas bárias açones de dibulgaçon i arreculhidas semientes de cultibos an risco de zaparecer, apuis ambiadas pa l Banco Pertués de Germoplasma Begetal[(1)] | 2012 |
| | Studies have so far been conducted using community participation tools, field work through scuba diving, video and GPS positioning, the collection of biological material, laboratory analysis and processes, as well as statistical validation methods. Follow the main results of each action at **www.findkelp.org** | 2012 |

**All these studies will be available for consultation at Browsedp. www.browsedp.edp.pt (see page 53)**

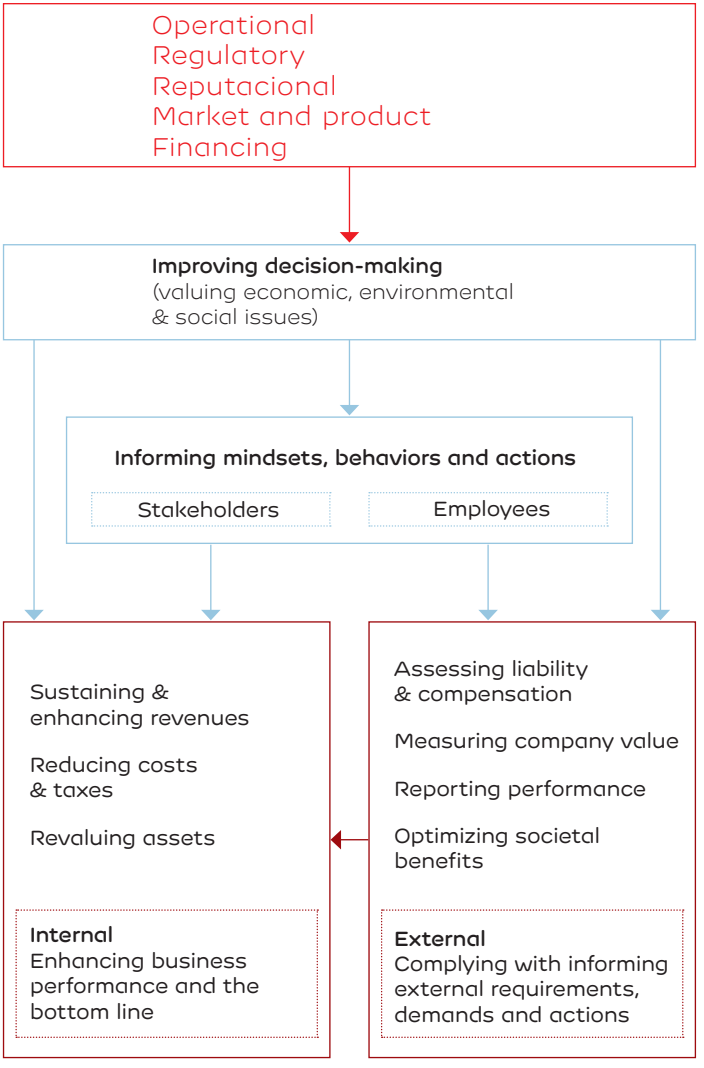
# SUPPORT PROVIDED TO SOCIETY

## VALUATION OF ECOSYSTEM SERVICES

**EDP** has been a member of the World Business Council for Sustainable Development (WBCSD) since 2004. This international organization regularly brings together about 200 companies from around the world to share experiences and reflect on the role and participation of the private sector in the achievement of sustainable development.
It can become a competitive advantage to know the current and future dependency of companies on different ecosystem services as well as the effect such services have on them, while also simultaneously contributing to moving the company closer to sustainable development.
In this context, the economic valuation of ecosystem services is an important management tool.
As part of an initiative promoted by the WBCSD, **EDP** participated in the preparation of the publication "Guide to Corporate Ecosystem Valuation - A Framework for Improving corporate decision-making", by developing, based on this methodological framework, a case study in partnership with the IST, the CIBIO and CIMO.

The following figure is intended to summarise the incorporation of the valuation of ecosystem services in a business management framework.

## Ecosystem-related business risks and opportunities




Source: Guide to Corporate Ecosystem Valuation – A framework for improving corporate decision-making, WBCSD 2011

## SUPPORT PROVIDED TO SOCIETY

The aim of the valuation study of the Serra da Estrela hydro-electric cascade was to estimate the total economic value of the ecosystem services provided by the water basin where the Serra da Estrela cascade is located, comparing it to a scenario in which the hydroelectric system does not exist. Cost-benefit analyses of alternative management scenarios for the study area were also performed, considering the risk of fire, the maximization of the operating conditions of the hydroelectric plants and biodiversity as the variables to be optimized.
The management scenarios were developed according to the existing regulatory framework, including the Regional Forestry Plans. This study will be available on Browsedp until the end of 2011.

### REINTRODUCTION OF THE OSPREY TO PORTUGAL

**EDP** decided in 2011 to provide support to a project to reintroduce the osprey to Portugal, for a period of 5 years.

The decision was based on the following criteria:

- It is a species in critical danger, according to the Red Book of Vertebrates;
- It is a species that is known to be affected by the electricity generation and distribution activities;
- Reintroduction has already been successfully tested in Spain, which strengthens the probability of success in Portugal, thus increasing the distribution habitat of the species on the Iberian Peninsula; and
- It is a species that can potentially be favourable to the habitats created by the reservoirs of the new dams under construction.

CONSULTATION PANEL OF PROJECT[1]

Estación Biológica de Doñana e fundación Migres - Project to Reintroduce the Osprey to Andalusia, Spain;

University of Gothemburg;

Swedish Society for Nature Conservation;

Swedish Museum of Natural History;

Finnish Museum of Natural History;

ICNB - Instituto de Conservação da Natureza e Biodiversidade

CIBIO

[1] In final stage of being made official.

The osprey (*Pandion haliaetus*) became extinct as a reproducing species in Portugal in 2002, this made its natural re-establishment very unlikely.
The project plans to collect individuals from donating populations (Sweden and Finland), where the species is not in risk of extinction. They will then be transferred and released at Alqueva reservoir, which is considered by the experts of the different national and international bodies participating in the project to be the most favourable zone for the re-establishment of a self-sustainable population of osprey.

# SUPPORT PROVIDED TO SOCIETY

## INVOLVEMENT OF THE LOCAL COMMUNITY

The Project - The **EDP** biodiversity and local community involvement policy takes the form of a programme of dialogue on biodiversity directed towards the local communities in which **EDP** operates. In this experimental phase, the project is growing within the educational community of the region between the International Douro and Sabor-Tua, in the north-east Transmontana region. The project has theoretical, theory and practical, and practical components. The aim is to communicate the "Importance of Biodiversity" anchored on three main vectors: man as a biodependent being, the causes of biodiversity loss  and what we can do for biodiversity.
This last vector comprises the Activity - Collect, Germinate, Plant - as an example of the many things we can do for biodiversity, and where children play an active role in the entire cycle of plants, from the collection of seeds to germination in **EDP** greenhouses and replanting in their original natural habitat.

## BROWSEDP – SHARING KNOWLEDGE WITH SOCIETY

To facilitate access to environmental information produced or financially supported by **EDP**, a database was developed - Browsedp - which allows this accumulated knowledge to be shared with society. The most recent environmental impact studies of the company are available at **www.browsedp.edp.pt**, as well as other types of studies conducted by the company and of interest to the community. This database is being extended to all **EDP** Group companies. Browsedp stores and makes information available in a systematic and simple manner, in the different countries where it operates. The studies can be of a legal nature (such as the EIA) or voluntary, such as the projects supported by the **EDP** Biodiversity Fund or those developed under the Business and Biodiversity initiative, for example. The documents are presented in their entirety and in the language of origin.

browsedp
sharing knowledge with society

# SUPPORT PROVIDED TO SOCIETY

## FILEPLACE – STRATEGIC MANAGEMENT PLATFORM

FILEPLACE – Strategic Co-operation Platform is an electronic platform developed as part of the partnership between EDP Distribuição S.A and FloraSul – Associação de Produtores da Floresta Alentejana, under the Environmental Promotion Plans supported by ERSE.
This platform is used by various public and private institutions to exchange and share information about the country. Its aim is to facilitate the adoption of sustainable solutions for the management and conservation of natural resources.
https://www.fileplace.org.pt/index.php

## 2010 INTERNATIONAL YEAR OF BIODIVERSITY

During 2010, **EDP** promoted and supported a range of initiatives to raise awareness to biodiversity, including:

### Raising in-house awareness

- In-house survey on biodiversity – which gauged the perceptions associated with this subject;
- Awareness-raising session, broadcast live on the in-house TV channel - edp ON, which gave all workers the opportunity to ask questions, which were answered by the EBD and the Group's Sustainability Manager.

- Promotion of B-Day – International Biodiversity Day, mobilizing the workers and local communities to take part in activities and contribute to the www.biodiversity4all.org initiative.


## Support to the Community

- Sponsor of the official programme in Portugal consisting of a varied range of activities involving the scientific community, schools, universities and the community in general.

- Sponsorship of the Field Guide publication distributed to all **EDP** workers who took part in the B-Day initiative in Portugal.

- Pilot programme to involve the local school community of the areas neighbouring new hydroelectric projects in Portugal. The aim is to validate an educational action plan that may serve the rest of the local community in the future.

- In Brazil, the Art with Energy competition put more than 1,600 children producing artwork on the theme of "Biodiversity, what a different life!". 130 pieces of artwork were entered and 15 were awarded prizes. The travelling exhibition of the work was strengthened by the creation of newspapers on the subjects of biodiversity know-how, Brazilian biomes, and flora and fauna of the world.

## THIS REPORT

All technical and operational data describing the company refer to December 2010, and have been checked by an external entity, along with the EDP 2010 Report and Accounts.
EDP's business activities are the production, distribution and sale of electricity and the transport, distribution and sale of gas. For the purposes of describing impacts, the scope of reporting is limited to the business activity of production and distribution of electricity.
The specific biodiversity information, namely the reported projects and case studies, are duly dated and have been developed by the company since 2007.

October 2011 edition
All technical and operational data describing the company refer to December 2010, and have been checked by an external entity along with the EDP 2010 Report and Accounts.

## ACKNOWLEDGEMENTS

EDP would like to thank all its partners, particulary for their support in drawing up some content and making available certain images used in this report.