

EFQM Good Practice Competition 2015

Achieving Sustainable Excellence

Registration form

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The registration form and submission report have to be returned together with the video to Vinciane Beauduin at EFQM (Vinciane.beauduin@efqm.org) by 15 May 2014 at the latest.

Should you have any queries, feel free to contact Vinciane Beauduin via email at Vinciane.beauduin@efqm.org, or by phone on +32 2 775 3510.

Good Practice - Submission Report

Good Practice Title	Birds and power lines: mapping of flight path
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Organisation overview

- Country: Spain
- Industry: Electrical
- Key indicators:
 - Number of Employees: 1682
 - 42,601 km of electrical lines
 - 98.2 % quality of service
 - 42,8 % integration of renewables (% of demand)
 - 1,846.7 € million net revenue
 - 1,385.4 € million EBITDA
 - 717.8 € million net profit
 - 493 € million investment in the grid
- www.ree.es

Red Eléctrica Corporación is the holding company of the Group and it has the following dependent subsidiaries: Red Eléctrica de España, responsible for electrical supply in Spanish territory; Red Eléctrica Internacional, responsible for the Company's foreign investment and the Company's international consultancy service and telecommunications business; Red Eléctrica de España Finance and Red Eléctrica Financiaciones, created as vehicles for financing the various activities of the

Group's companies, and REDCOR Reaseguros S.A., created as a captive reinsurance company to reinsure the risks linked to the above mentioned activities, guaranteeing thus a better access to international markets.

Red Eléctrica de España, S.A.U. carries out its regulated activities in Spain, which represent 95% of the Group's business being the owner of all the transmission and operation assets It counts on the human and financial resources associated to these activities. In addition, it undertakes the Company's investment plan.

Red Eléctrica is the sole transmission agent and operator of the Spanish electrical supply, making us the main key player in the Spanish electrical system.

Red Eléctrica is a private company whose shares are publicly traded and listed on the IBEX 35. The majority shareholder is the State Industrial Holding Company (SEPI), with a 20 % stake, while the remaining 80 % is free float.

We operate the electrical system 24 hours a day 365 days a year, guaranteeing supply at all times. Additionally, we are responsible for the high-voltage (400 and 220 kV) transmission of electricity from generation stations to distribution. Furthermore, we have the responsibility for developing, extending and maintaining the transmission grid.

We manage the Spanish peninsular electrical system as well as the insular and extra-peninsular systems with the aim of contributing to the efficient operation of all electrical systems.

Our **mission** is to guarantee the correct functioning of the electrical system and to ensure the continuity and security of electrical supply at all times. To that end, we supervise and coordinate the generation-transmission system and manage the development of the transmission grid. The Company carries out this mission under the principles of neutrality, transparency, and independence, with the aim of providing a secure, efficient electrical supply service of the highest quality for society as a whole.

Our **vision** is to be a leading company in high-voltage transmission and in the operation of electrical grids, recognized globally for offering a service of the highest quality, with ethical and responsible management and firmly committed to sustainable development thus increasing value for all our stakeholders.

The 10 principles of our business management model are:

1. Keep our independence from the remaining electrical system agents.
2. Demonstrate neutrality and transparency.
3. Adopt best practices in good corporate governance.
4. Seek business excellence.
5. Protect and preserve the natural environment.
6. Contribute to the development of a sustainable energy future.
7. Offer society a secure and efficient service of quality.
8. Create value for all stakeholders.
9. Promote dialogue, integration and social development.
10. Build an organization focused on people.

Red Eléctrica's mission is geared towards the achievement of sustainable development. This entails the promotion of a more efficient electrical system, focusing on ensuring the economic sustainability of the Company in the mid and long term, and fostering socially-responsible relationships with the value chain, with special attention to shareholders, customers and suppliers.

Red Eléctrica cannot disregard the environment in which it operates, and must build quality ties with the different stakeholder groups that integrate it, developing a relationship with society that aims to generate shared value, with a high commitment to the protection and preservation of the natural environment, ensuring the preservation of biodiversity and fighting against climate change.

Committed to the guarantee and security of electrical supply

Red Eléctrica has the responsibility to contribute in the provision of a safe, efficient and sustainable electrical supply. With this in mind, we make a significant investment effort in the development of a transmission grid that is increasingly meshed, robust and better interconnected with our neighbouring countries to provide the highest level of quality service to all electrical generators, distributors and consumers.

We are committed to a sustainable energy future

Red Eléctrica is successfully contributing to making the challenge of sustainable development a reality through the integration of renewable energy and the promotion of projects aimed at energy efficiency and innovation.

We are a world reference in the safe integration of renewable energies

We have the only control centre in the world for the safe integration of renewable energy into the electrical system: The CECRE. The operation of this control centre provides us with a high response capacity to identify risks and anticipate the behaviour of these intermittent energies and compensate for their high variability.

The role of CECRE is contributing to renewable energy generation having an increasingly prominent role in satisfying demand, which favours not only the reduction of air polluting emissions but also the high dependency of our country on foreign energy.

We protect the natural environment and biodiversity.

In Red Eléctrica we make a significant effort to avoid or reduce the impact of our activities on the environment. To minimize the possible effects of our facilities, we apply strict environmental criteria in all stages of development of the transmission grid.

Biodiversity conservation has always been a basic principle within our environmental policy and corporate business strategy. In 2010, we strengthened our engagement through the definition of a core strategy for the Company to follow in this field and an action plan until 2014.

Our environmental commitment

- Work to make our facilities compatible with the environment.
- Ensure the protection and conservation of biodiversity.
- Contribute to the fight against climate change.
- Promote energy saving and efficiency.
- Establish measures for pollution prevention and adequate waste management.

Learn more. www.ree.es

Desired Results

■ Summarize the key objective(s) of the approach you have adopted

The approach is part of REE's extensive program of activities related to the environment and the conservation of biodiversity and arises from the quest for solutions to the problems caused by the interactions between birds and power transmission lines, mainly the collision with cables.

The key objectives of the approach adopted by Red Eléctrica de España are:

- 1) Reduction of the global impact of the electrical transmission system on the environment and particularly on biodiversity
- 2) Improvement of the compatibility of transmission lines with birdlife by reducing the collision risk with electric cables
- 3) The implementation of a tool that facilitates the decision making process in early stages of new projects taking into account the protection of birdlife
- 4) The development of a process to prioritize mitigating actions of the actual grid of transmission power lines impacts on birdlife

These objectives are related with the principles number 7 (precautionary approach to environmental challenges), 8 (to promote greater environmental responsibility) y 9 (encourage the development and diffusion of environmentally friendly technologies) of the UN Global Compact.

■ What has been improved in detail?

A tool based on the use of Geographic Information Systems (GIS) has been developed that integrates bird flight paths data (areas of presence and routes), to improve prevention of impacts on birds during the planning and construction stages of new electrical transmission systems, and to prioritize mitigating measures on existing lines.

This action has been implemented in all Spanish territory, where more than 400 bird species are present on regular basis and the extend of power-line grid is over 265.000 km, so mortality of birds due to collision with cables is a relevant cause of biodiversity loss. A significant effort is made to collect and homogenize existing information regarding the flight paths of 45 species of birds (focal species) considered of greatest interest due to their conservation status and sensitivity to the negative effects of power transmission lines: collision, habitat loss and disturbance.

Sensitivity maps are drafted from this information, taking into consideration different criteria (propensity to negative impacts, conservation status of species, etc.) and integrating the outcome into a national geographic information system. The tool is exploitable at different stages of work, providing in each case the most appropriate information for planning transmission grids, determining corridors of least impact for new projects and prioritizing mitigating measures.

This action will contribute to a reduction of loss of biodiversity: whether by avoiding areas for the passage of new power line corridors with a presence of sensitive species or by the application of mitigating measures on existing lines in priority areas. The developed tool will contribute to the

reduction of accident rates of bird species for which the collision-related mortality is relevant. The majority of birds affected by this initiative are endangered species for which collision with cables poses a serious threat to their populations, so an appreciable benefit from the project is expected on the conservation status of these species.

Read more. www.ree.es/en/sustainability

Approach

■ Describe the current approach within your organization

The initiative has a national scope and is being developed in stages, with an expanding territorial range. In 2014, the tool has been implemented in the territories of 14 autonomous communities and in 2015 it will be implemented in the whole of Spain. This is achieved through the collaboration of organizations and public administration bodies who serve as custodians of the information relevant to the project: autonomous governments, researchers, environmental organizations, etc.

The developed tool will be shared with the different environmental public administrations and it is hoped that it will become a common framework for the environmental assessment of projects and for the programming of mitigating actions. The use of this tool will allow access to the same information to all parties involved in nature conservation and environmental assessment of projects as well as to the promoters of power lines to, enabling the design of new facilities with the least impact on bird life. It also enables the streamlining of mitigating actions on lines installed in highly sensitive areas.

REE's intent is to update the tool incorporating periodically new information, to expand it to include other species and to consider new criteria for decision making as the knowledge base on the interactions between birds and transmission lines expands.

■ Describe which elements have been implemented

The action will be complete by the end of 2015. At present, three innovative elements in the decision making process on new projects in the territories of 14 autonomous communities of Spain have been implemented, as well as in the prioritization of mitigating actions on the actual transmission grid:

- 1) A Geographical Information System covering the best information available on presence and distribution of sensitive species of birds
- 2) A set of sensitivity maps to address a specific problem associated with the interaction between birds and the development of new infrastructures and existing ones
- 3) A set of maps to identify areas of high colliding risk of birds with power lines, providing useful data for mitigating measures (available at the moment for two autonomous communities and in the process of being implemented in the rest).

■ Describe how this approach is linked to your overall strategy

Sustainability is a key element for the development of its fundamental strategies provided for in REE's strategic plan as. REE is banking on support at the strategic level for sustainable development through fostering corporate responsibility, which the Company understands is accepting responsibility for the impact of its activities and a commitment to minimizing these, in cases in which the said impacts are unavoidable. Biodiversity conservation is a commitment undertaken in the Corporate Responsibility Policy as well as in the Environmental Policy, and is carried out through

REE's biodiversity strategy.

The continuity of this initiative is linked to the Biodiversity Compact and the Spanish Business & Biodiversity Initiative signed by REE, which proves its commitment to the conservation and sustainable use of biological diversity. The designed product will be of continuous use by the Company since it will become a tool for decision making in planning and new projects and for the application of preventive and corrective measures to reduce the impact on birds, as well as the maintenance of the natural resources of the territories where the Company has assets and future projects. Periodic updating is expected as new relevant information becomes available.

Deployment

■ Describe how this approach was implemented within your organisation

The final products of this initiative (GIS, sensitivity maps and collision risk maps) have been shared with the regional environmental authorities as they have been available for the different autonomous territories. These products are used both by REE and environmental authorities in the framework of the analysis of alternative corridors for new transmission lines and in the environmental assessment process of new projects.

Furthermore, REE is promoting the elaboration of programs of mitigating measures on the existing grid of transmission power lines for those territories in which the collision risk map has been completed. The risk maps allow to identify the potential hazardousness of segments of the actual power lines in detail, so the most dangerous sections of power lines on the grid can be prioritized to be corrected with anti-collision measures.

Red Eléctrica has won the European Business Award for the Environment 2014-15 in the Business and Biodiversity category. The Company won at the European Business Awards for the Environment 2014 (Spanish section) in the same category.

■ What were the major challenges you had to overcome?

The main challenges have been connected to gathering necessary information about bird flight paths accurately and confidently. Major efforts have been made to gather information which was scattered and fragmented in a large number of sources and in a great diversity of formats. A huge number of scientific and technical papers, as well as multiple unpublished data, databases, etc. have been collected, so numerous problems derived from working with such a diverse kind of data have been addressed. Geographical data about distribution and flight paths of each of the 45 focal species of birds have been extracted and assessed and relevant information on this topic has been integrated in a unified geodatabase.

REE's main partners in this initiative have been the environmental authorities of the 17 autonomous communities of Spain and of other institutions at lower administrative levels, as well as researchers, research centers and non-governmental organizations devoted to birdlife study and conservation. So another great challenge was to establish contacts with these stakeholders and to convince them to take part in the project and to maintain the convenient progression in the work.

Assessment

■ Please describe what benefits have been achieved

The project is presented in the context of the study and search for solutions to the problems arising from the interactions between birds and power transmission lines. It facilitates the decision-making process in planning and executing new transmission infrastructures (lines & substations) and the management of the existing power grid by incorporating the consideration of the protection of birds into all stages.

By offering a common referential framework shared with public administration bodies and environmental organizations, it promotes transparency in the public information process and public consultation.

It is expected that the project will have a positive impact on the conservation of endangered bird species and their habitats by minimizing the impact of transmission grid on birds. Mapping techniques based on GIS are used to develop sensitivity maps, thereby providing an innovative product that facilitates the infrastructure planning process utilizing the most current and relevant information available on bird life; it also allows areas of higher risk of collision to be identified, providing useful data for the prioritization of mitigating actions.

The availability of such maps has allowed REE to develop a set of status indicators to assess the actual risk of the transmission line grids for birds. These indicators will allow the setting of specific targets on the reduction of the global hazardousness of the grid for birds, as well as the quantitative and qualitative assessment of the progression in risk reduction after the application of mitigating measures in the identified priority zones.

The project products (both the GIS based tool and the set of sensitivity and risk maps) will be usable not only on the reduction of impacts of new or existing transmission lines on birds, but also in the planning and design of other infrastructures (power distribution lines, wind farms, roads, etc.) by promoting the consideration of impacts on birds at the earliest stages of projects and the adoption of the best mitigating measures. Furthermore, the developed methodology will be replicated in other countries or in broader geographical areas, and can be focused on other biodiversity components such as other fauna and flora species or natural habitats. The products of the project can be easily actualized with new relevant data on current species and also be enhanced with new focal species, broadening thus their initial repercussion on biodiversity more broadly.

Refinement

■ What are the lessons learned?

The main lesson learned derives from the fact that it is the first experience at a national level that focuses on the interaction between birds and power transmission facilities and which is directed to improving the decision-making process in the planning of a sector of activity, such as the electrical sector, which has a significant direct impact on the state of conservation of biological diversity.

It offers the promoters and public administrations involved in biodiversity conservation and environmental assessment a shared resource that improves transparency in the environmental planning processes and in projects for new transmission lines facilitating thus the adoption of minimal impact solutions. The product may be of interest to other companies in the electrical sector and in the field of the renewable energies (installation of wind farms), which would increase the described benefits.

This product achieves a significant environmental improvement in the implementation of power infrastructures, which are necessary for the development and well-being of society, and responds to the growing demand by stakeholders linked to REE for environmentally friendly products and services, under the premise that the conservation of living and healthy habitats and ecosystems contributes to the sustainable development of the territory and its inhabitants.

■ Summarize the planned next steps if applicable

A media campaign has been undertaken to report on the initiative and informative sessions are being held by specialists from the different autonomous communities focused specifically on biodiversity conservation and environmental assessment. .

The tools developed will be shared with the different environmental public administrations, and it is hoped that they will become a common framework in the environmental assessment of projects and in the programming of mitigating actions. The use of these tools will allow all parties involved in nature conservation and environmental assessment of projects and the promoter of power lines to access the same information, allowing for the design of new facilities with the least impact on bird life. It also allows for the streamlining of mitigating actions on lines installed in highly sensitive areas.

The designed products will have a continuous application in the Company as they will become tools for planning decision making and in new projects and for the application of preventive and corrective measures to reduce the impact on birds, as well as the maintenance of the natural resources of the territories where the Company has assets and future projects. Periodic updating is expected as new relevant information becomes available.