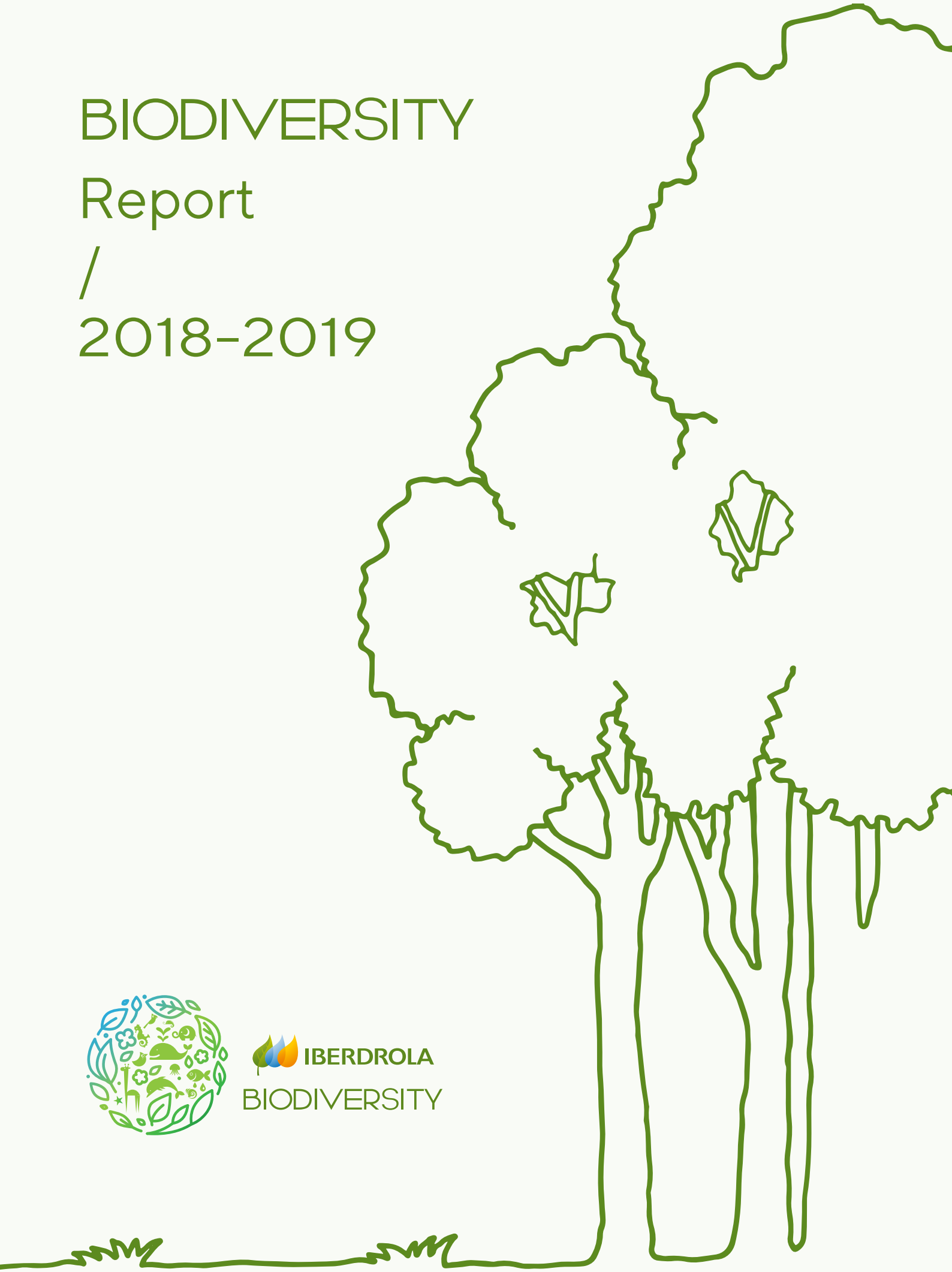
BIODIVERSITY Report / 2018-2019



IBERDROLA
BIODIVERSITY

Iberdrola and biodiversity

"We protect biodiversity of ecosystems as a source of sustainable development"

This icon refers to related information.
Likewise, it reports other specific reports where you can access more information of interest.

Contents

Iberdrola will continue to act responsibly, safeguarding ecosystems and respecting the environment to achieve entirely sustainable economic and social development.

Iberdrola has fully integrated the conservation of biological diversity of ecosystems within its strategy, showing that it is possible to effectively combine secure energy supply to homes and industries and encouraging environmental balance. As explained in this 2018-2019 *Biodiversity Report*, the group pursues these goals through a series of environmental actions and projects in all the countries where it operates.

This year's report is particularly significant, because it coincides with the end of the United Nations Decade on Biodiversity which, based on the 2011-2020 Strategic Plan for Biodiversity, aimed to safeguard biodiversity from both the social and economic standpoints.

This period is coming to an end and a new phase is about to begin, making it a crucial moment to assess the progress we have made over the last ten years and to set new biodiversity targets for 2030, which will be adopted at the next conference of the Convention on Biological Diversity, scheduled for early 2021. Iberdrola, a pioneer in the fight against climate change and in the commitment to sustainability, is determined to contribute to the drafting of the new framework and will continue to apply, as always, measures that encourage environmental conservation.

The group is working to ensure that all its projects are carried out in a sustainable manner, following strict criteria to care for our natural heritage while also leading awareness-raising campaigns among all stakeholders.

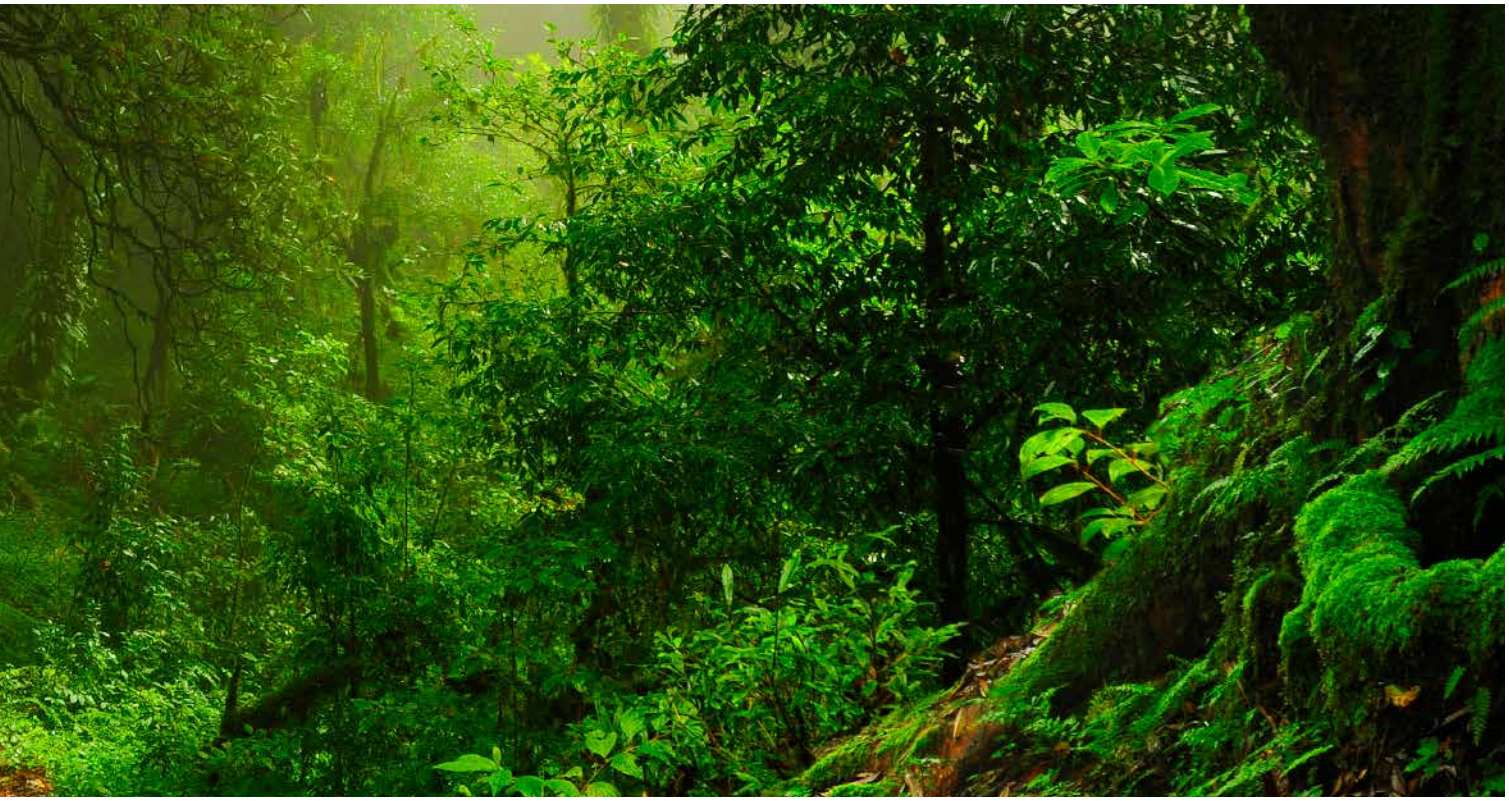
To achieve this, Iberdrola has a Biodiversity Policy, approved by its Board of Directors, which, together with its Sustainability, Environment and Climate Change Policies, form a complete and coherent set of principles for actionfor environmental management. This course of action enables us to comply with our Social Dividend, a concept enshrined in our Articles of Association that encompasses the numerous actions we carry out to create sustainable value for society as a whole, in line with the United Nations' Sustainable Development Goals.

We are aware that everything we do has an impact on the world around us, and it has been proven that by caring for nature and the health of ecosystems we are creating natural barriers that will help prevent calamities like the global pandemic we are experiencing in 2020.

All these reasons make protecting biodiversity increasingly important. Iberdrola will continue to act responsibly, safeguarding ecosystems and respecting the environment to achieve entirely sustainable economic and social development.

Ignacio S. Galán
Chairman & CEO of Iberdrola

1. Introduction



Iberdrola publishes the 2018-2019 Biodiversity Report to provide stakeholders with clear information about the Group's efforts to protect biodiversity, in accordance with its commitments in the Biodiversity Policy approved by the Board of Directors in 2007, last modified in February 2019.

The report explains Iberdrola Group's approach to biodiversity management and how it interacts with biodiversity, its initiatives to reduce and offset impact, and its research, conservation, education and awareness programme for 2018 and 2019.

1.1 Iberdrola today

What we are

Iberdrola is currently[1] the world's third largest electricity company by market cap and the largest in Europe that is not government-owned. The group supplies energy to almost 100 million people in dozens of countries and has more than 600,000 shareholders, a workforce comprising more than 35,000 employees, and assets worth more than €122 billion.

Our activities

- Electricity generation using renewable and conventional sources.
- Electricity transmission and distribution.
- Buying and selling electricity and gas in wholesale markets.
- Gas distribution.
- Electricity and gas supply
- Other activities, mainly linked with the energy sector.

"The group supplies energy to almost 100 million people"

Key figures 2019

Iberdrola group 2019 Key figures		
52,082 MW Total installed capacity		**32,041** MW Total renewable installed capacity
151,714 GWh Net production	**1,191,513** Km / Power lines	**233,502**GWh Distributed energy
34 Millions of consumers [2]	**8,158** €M Gross investments [3]	**8,156** €M Direct tax contribution
35,374 People `irect employment	**Approximately 400,000** People [4] Direct, indirect and induced employment	**8,716** €M Procurement

(1) As at the date of issue of the Report.

(2) Consumers; for electric power, total number of customers is used where there areas of electricity distribution and retailing, supply points are used for the other areas. For gas: total number of gas customers is used, except for the United States, where total number of supply points is used.

(3) Net total investments for financial year 2019 were €7,240 million.

(4) Data from a Study of Iberdrola´s Impact, prepared by PwC, for financial year 2018.

1 At the time of writing this report

Primary facilities of Iberdrola group

359[1] Onshore wind farms

181 Hydroelectric plants

3 Offshore wind farms

21[2] Combined cycle gas plants

24 Cogeneration plants

5 Nuclear plants

2 Thermal plants [1]
(1) Closing requested

11 Photovoltaic plants

4 batteries

1 L.E. submarina

Projects under construction*

51 **1** **4** **1** **1** **4** **28** **12**

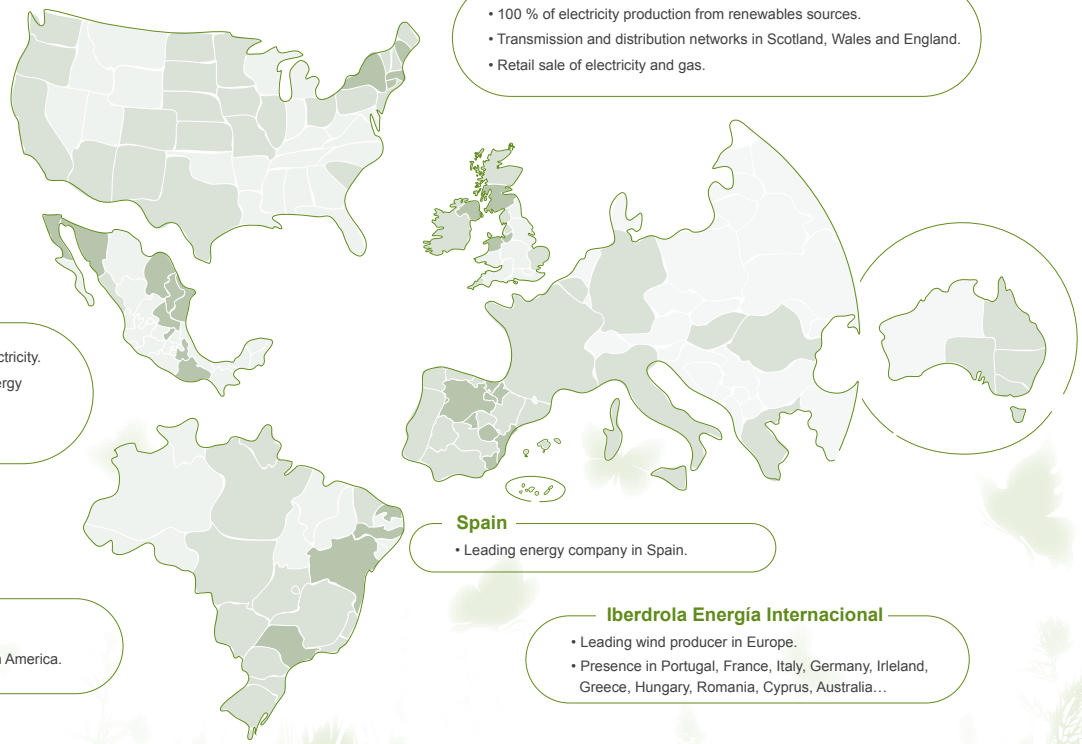
(*) data at the end of 2019
(1) Mexico. 1 for third party
(2) México. 6277MW for third parties

International presence

The Iberdrola group operates in multiple countries including Spain, the UK, the US, Brazil, Mexico, Germany, Portugal, France, Italy and Ireland, as well as Australia, where the company has just begun construction on a hybrid solar and wind project.

United States
- Presencie in 24 states.
- Electricity and gas distribution in New York, Maine, Connecticut and Massachusetts.
- Almost all production from renewable sources.

United Kingdom
- 100 % of electricity production from renewables sources.
- Transmission and distribution networks in Scotland, Wales and England.
- Retail sale of electricity and gas.



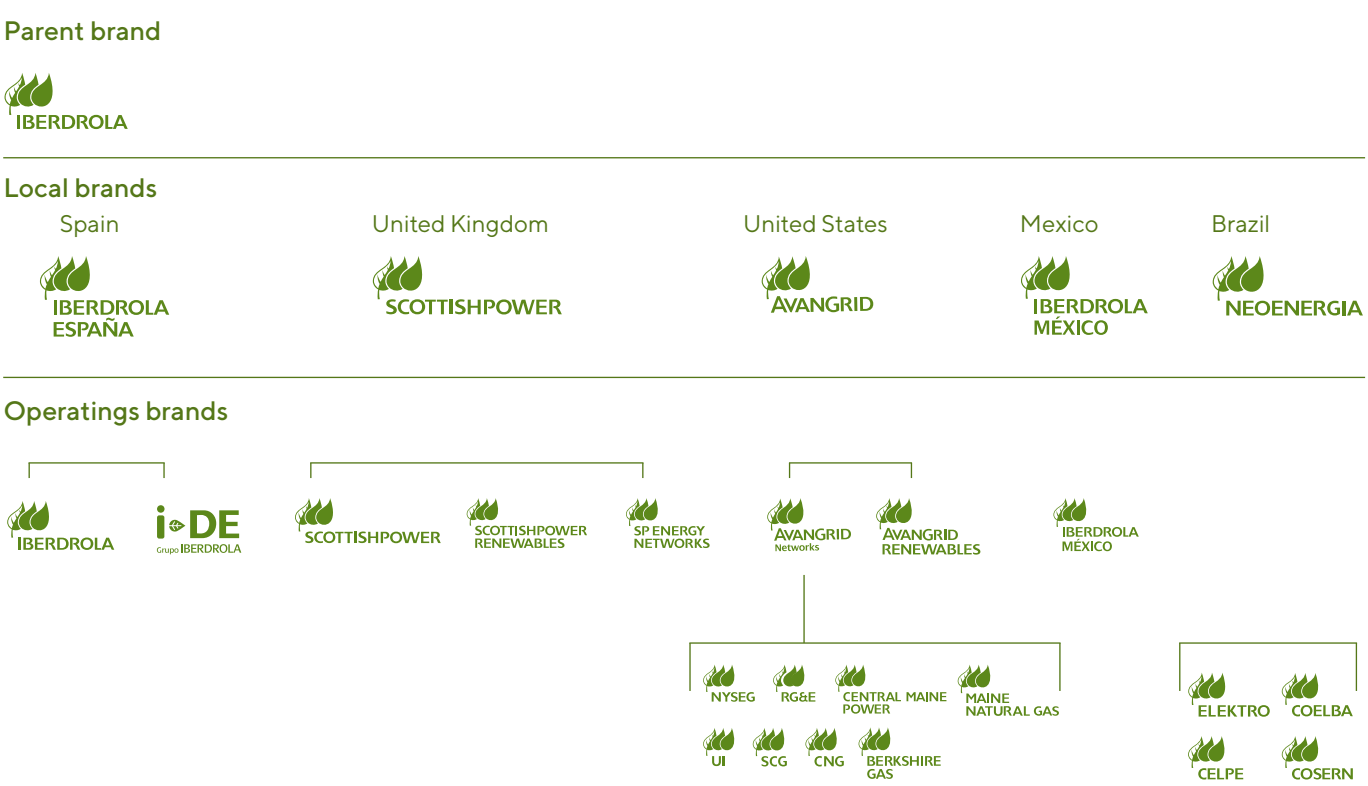
México
- Second-largest producer of electricity.
- 20 years contributing to the energy development of the country.
- Presence in 13 states.

Spain
- Leading energy company in Spain.

Brazil
- Presence in 18 states.
- Energy leader in Brazil and Latin America.

Iberdrola Energía Internacional
- Leading wind producer in Europe.
- Presence in Portugal, France, Italy, Germany, Irleland, Greece, Hungary, Romania, Cyprus, Australia…

The main Iberdrola brands in each region, operating at the end of 2019, are presented in the table below:



1.2 Biodiversity on the international agenda

The 1992 Convention on Biological Diversity defines biodiversity as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes **diversity within species, between species** and of **ecosystems**."

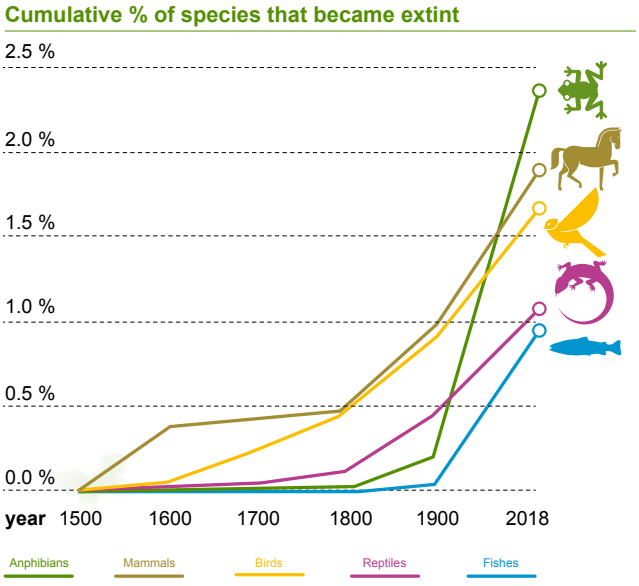
Over recent decades, human beings have introduced unprecedented changes in ecosystems to satisfy an ever-growing demand for food, water, raw materials and energy. This has resulted in a loss of biodiversity and the deterioration of ecosystems, which is a source of increasing concern worldwide. According to the IPBES[2], around a million plant and animal species are now in danger of extinction, more than ever in human history – a consequence of the increasing impact of human activity.

The report identifies the main drivers of biodiversity loss as being (in order of relevance): **changes in land and sea use, direct exploitation of organisms, climate change, pollution, and invasion of alien species**. It also predicts that climate change will become increasingly important as a direct driver of changes in nature.

This loss of diversity is a negative indicator of the planet's loss of habitability, given that all living beings, including humans, depend on biodiversity and the natural resources it provides. In addition to the loss of the intrinsic value of nature, an enormous amount of strictly social or economic goods and services provided by the ecosystems are lost or deteriorated. Biodiversity underpins food security, human health, and the supply of clean air and drinking water. It also has a protective effect, mitigating the effects of pathogens and infections. It also contributes to local means of livelihood and to economic development. However, despite its fundamental importance and all the international protection and conservation efforts, biological diversity continues decreasing.

The biodiversity crisis, with a million species at risk of extinction, may put human kind in danger within a matter of decades, according to the latest report from the UN's Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

2 The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services



Species extinctions since 1500. @IPBES -

According to the WEF[3] in its 2019 Global Risks report, biodiversity loss directly affects a third of global risks and is one of the 5 biggest global risks for the first time since the 2006 report.

If companies manage the risks associated with biodiversity efficiently as part of their business management, they may reap the benefits of a competitive advantage when it comes to accessing markets, capital and resources". TEEB Report –"The Economics of Ecosystems and Biodiversity".

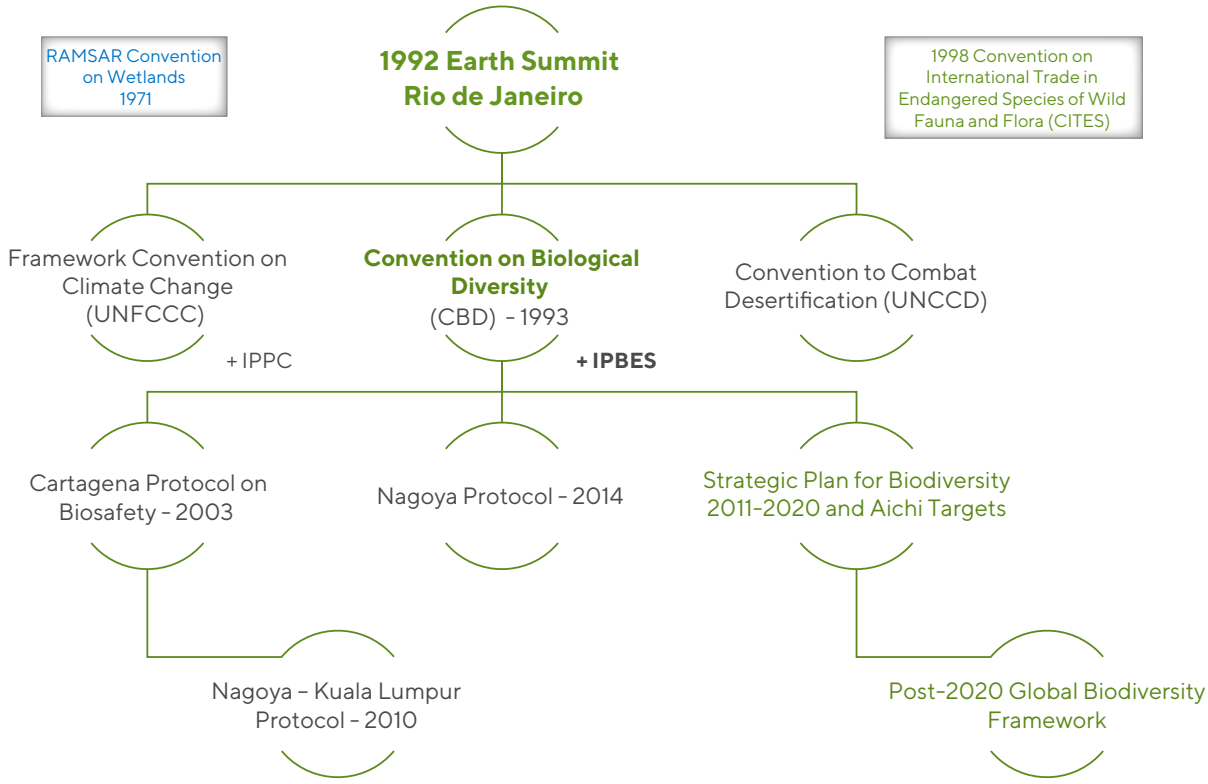
3 World Economic Forum

Convention on Biological Diversity (CDB)

International action for preserving the variety of life on Earth is based on the Convention on Biological Diversity (CBD) signed by over 192 countries after the Earth Summit in Rio de Janeiro in 1992.

Convention on Biological Diversity

The emergence of the Convention on Biological Diversity



Strategic Plan for Biological Diversity 2011-2020

During the Convention on Biological Diversity in Nagoya, Japan, the global community approved the Strategic Plan for Biodiversity 2011-2020 with the goal of inspiring large-scale actions to safeguard biodiversity by all countries and stakeholders over the next decade. Acknowledging the urgent need for action, the General Assembly of the United Nations declared 2011-2020 as the UN Decade on Biodiversity.

The Strategic Plan established 5 strategic objectives and 20 targets, known as the **Aichi Targets**. The Strategic Plan is a framework for setting national and regional objectives and promotes a coherent and efficient implementation of the three objectives of the CBD.

As this decade on biodiversity comes to an end, multiple organisations are currently working very hard to define a **Post-2020 Global Biodiversity Framework** and a set of global ecosystem protection and restoration objectives for 2030 to serve as a stepping stone for even more ambitious objectives for 2050. These efforts are being led by the CBD and will culminate in the approval of the new framework and objectives at the CBD COP15, scheduled to take place in Kunming, China in early 2021.

The vision defined by the CBD for this work is[4] :

"By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people".

Despite all our technological advances we are completely dependent on healthy and vibrant ecosystems for our health, water, food, medicines, clothes, fuel, shelter and energy, just to name a few.

"Our solutions are in nature" CBD

4 Zero Draft: https://www.cbd.int/article/2020-01-10-19-02-38

2030 Agenda "17 Sustainable Development Goals but achieving SDG 6 (Clean water and sanitation), SDG 13 (Climate action), SDG 14 (Life under water) and SDG 15 (Life on land) are necessary to achieve the rest."

In 2015, world leaders adopted 17 Sustainable Development Goals (SDGs) to eradicate poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda. Each goal has specific targets to be achieved by 2030.

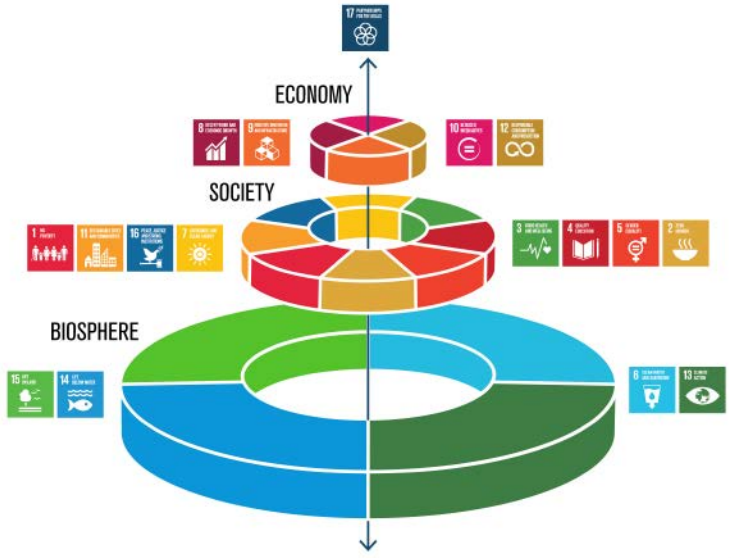
Natural capital stocks and ecosystem services provide the basis for all human activities, which is why achieving SDG 6 (Clean water and sanitation), SDG 13 (Climate action), SDG 14 (Life under water) and SDG 15 (Life on land) is necessary to attaining the rest.

"Social and economic development depends on the sustainable management of our planet's natural resources"

European Biodiversity Strategy 2030 and the European Green Deal

Within the European Union, protecting and improving biodiversity is one of the fundamental objectives of the European Green Deal launched by the European Commission in December 2019. The European Green Deal is based on an ambitious goal to stop and reverse biodiversity loss, which is outlined in the **new 2030 Biodiversity Strategy** published in May 2020.

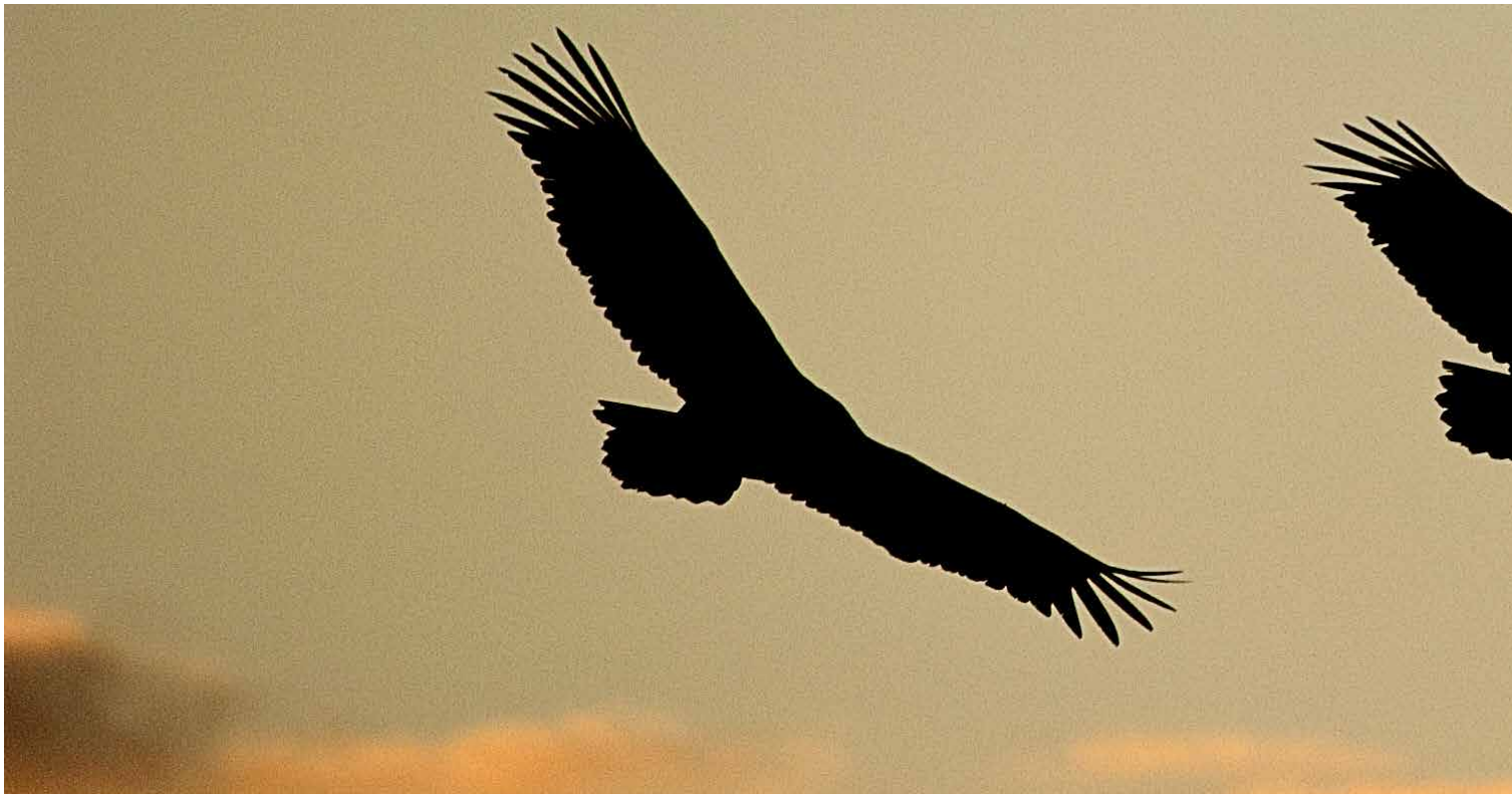
This **new Biodiversity Strategy** addresses the key factors that have led to biodiversity loss, such as unsustainable use of land and sea, overexploitation of natural resources, pollution, and invasive alien species. The strategy proposes, among other things, defining binding targets to regenerate degraded ecosystems and rivers, improve the health of EU-protected habitats and species, reduce pollution, make cities more eco-friendly and help restore European woodlands. The strategy presents concrete actions to regenerate European biodiversity by 2030, including transforming at least 30% of Europe's land and 30% of its seas into effectively administered protected areas and bringing back at least 10% of land area under high-diversity landscape features.



This strategy presents the Commission's position toward the new United Nations framework on biodiversity, which will be announced at the 2021 Conference of the Parties to the Convention on Biological Diversity.

"Iberdrola will support the new objectives of the Convention on Biological Diversity's new global framework, as well as regional strategies, and will work on developing clean energies acting responsibly towards nature as a source of sustainable development, in line with the UN Sustainable Development Goals, an integral part of its strategy"


IBERDROLA



2. Iberdrola and Biodiversity

2.1 Biodiversity Management in Iberdrola's main operating Regions

"At Iberdrola, we have made conservation and promoting biodiversity part of the group's strategy to develop clean energy acting responsibly towards natureas a source of sustainable development"

The IBERDROLA Group is aware of the risks that biodiversity loss poses to the environment, society and the economy. Consistent with its historic commitment to sustainable development and defending and protecting the environment, it considers that respect for biodiversity and ecosystems must play a leading role within its corporate strategy. Iberdrola will support the new objectives in the Convention on Biological Diversity's new global framework, as well as regional strategies, and will work on developing clean energies that consider nature as a precious source of sustainable development, in line with the United Nations Sustainable Development Goals, an integral part of its strategy.

The background against which the Group's companies operate also poses major challenges to biodiversity management, such as achieving a balanced portfolio of facilities to minimise the environmental footprint of its energy production, and making its business activities compatible with the preservation and respect of the biological wealth of countries with areas of high biodiversity. It is necessary to create projects for achieving a balanced coexistence, preserving and protecting our natural heritage.

TARGET:

Achieve "No Net Loss" of biodiversity by 2030, working to ensure that new facilities deliver a net positive impact on biodiversity, where possible.

This objective is based on the application of the principles of the mitigation hierarchy in all activities and in the continual improvement of our standards of protection of biodiversity, integrating relevant methodologies to assess attainment of the objective. As a priority, Iberdrola avoids locating new infrastructure in designated conservation areas (protected because of their ecological, biological, cultural and/or scenic value) unless there are no other feasible alternatives. Areas of special interest for biodiversity without a specific designated protection will also be avoided whenever possible. Designated conservation areas include, amongst others, World Heritage areas, national or regional protected areas and the relevant IUCN categories.

Management tools for implementing commitments: Group Biodiversity Policy, Pact for Biodiversity, Biodiversity Action Plan, Environmental Impact Assessments for new projects, Iberdrola Group Environmental Management System and Corporate Environmental Footprint.

Biodiversity Policy

Since 2007, Iberdrola has had a Biodiversity Policy, approved by its Board of Directors, in which it commits to integrating biodiversity protection and conservation into decision-making during the planning, implementation and operation stages of its energy infrastructures. This commitment also encompasses actions that contribute toward biodiversity conservation and awareness-raising on the importance of this matter.

Pact for biodiversity

By signing this Pact, Iberdrola recognises and backs the three main objectives of the United Nations Convention on Biological Diversity:

- The conservation of biological diversity;
- The sustainable use of the components of biological diversity;
- The fair and equitable sharing of the benefits arising out of the use of genetic resources.

With its pledge to meet the commitments under this Pact, Iberdrola demonstrates its belief in operating in a way that is compatible with biodiversity conservation. These commitments include evaluating the impact of our activity on biodiversity and natural capital and defining realistic, measurable objectives to conserve them. These targets will be reviewed at least every three years.

Biodiversity Action Plan

Iberdrola has an Action Plan for managing issues related to biodiversity, following the four priority lines of action in its Biodiversity Policy:

- Protecting biodiversity, applying the mitigation hierarchy principles throughout the life cycle of facilities, using natural capital sustainably, and encouraging value creation.
- Understanding and preserving biodiversity based on the precautionary principle, by conducting studies to assess interaction between the facilities and their surroundings to avoid or minimise their impact and enhance preservation.
- Collaborate with stakeholders, considering their needs and expectations in terms of biodiversity and integrating these into action plans, and participating in research projects.
- Committment to raise awareness and spread information about the importance of biodiversity, and to tell everyone inside and outside the company about the impact of our activities and what we do to preserve biodiversity.

New projects: Environmental Impact Assessment applying the mitigation hierarchy

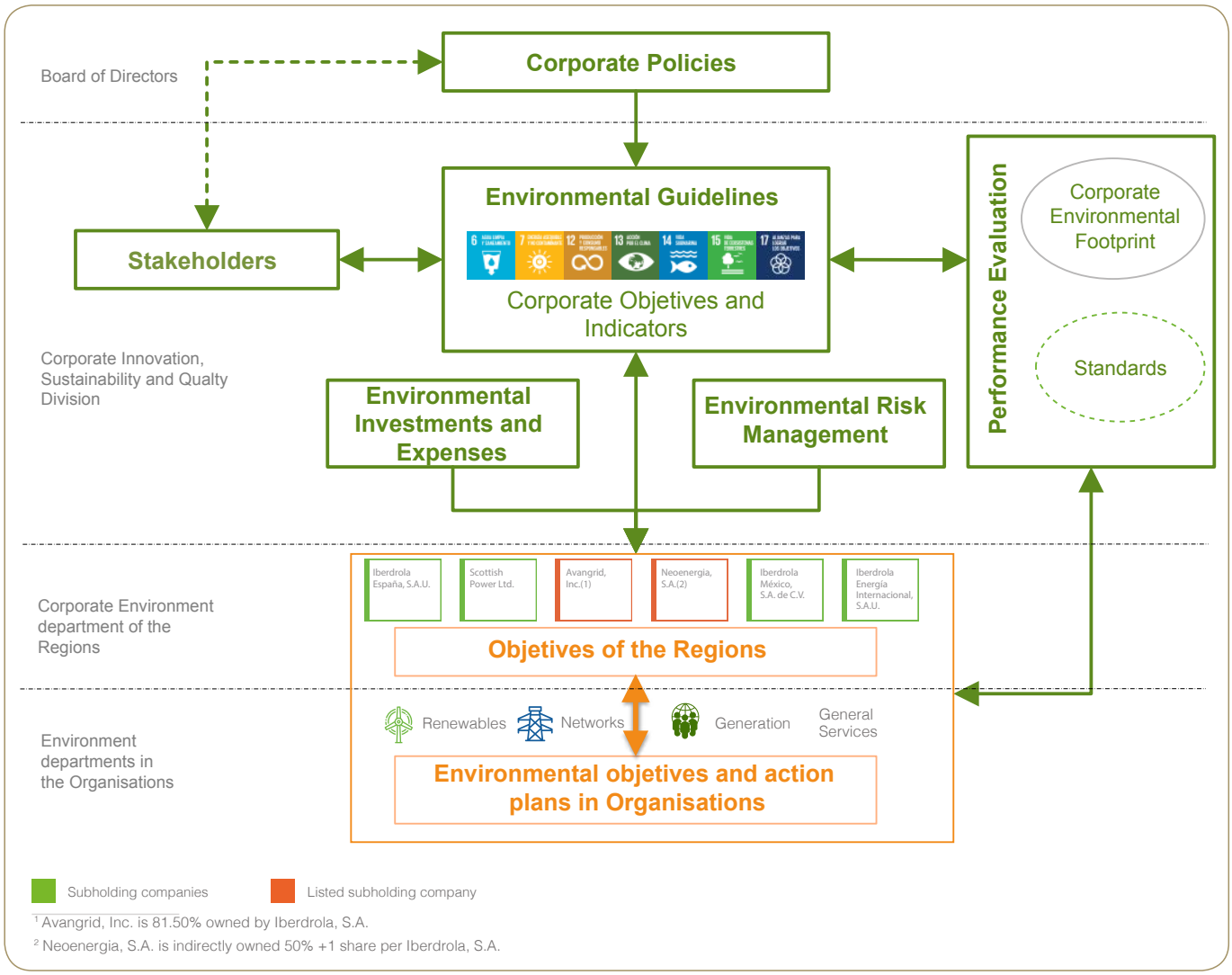
In the construction of new facilities, Iberdrola applies the mitigation hierarchy principles (avoidance, minimization, restoration and, as a last resort, offsetting) in Environmental Impact Assessment (EIA) processes.

In designing projects, it is essential to avoid locating new infrastructures in protected areas (including World Heritage Sites, national protection areas, SCIs, SPAs and related IUCN categories) or in areas of high biodiversity value unless there are absolutely no alternatives or where those alternatives are more harmful to the environment.

If significant effects are identified from the initial analysis of the environmental assessment, the project is adapted as much as possible, adopting the best available techniques and any measures identified as necessary for correcting and minimising such effects. Stakeholders are consulted and involved throughout the entire design process, which allows good construction practices to be incorporated that go above and beyond the applicable legal requirements. After the planning stage and during construction, Iberdrola continues to work alongside stakeholders to minimise any environmental impact and restore the affected areas.

Iberdrola Group Environmental Management System

Iberdrola integrates biodiversity protection and conversation into its Environmental Management System, which applies across the whole Iberdrola group. This environmental management system is common to all organisations within the Group and integrates the Sustainable Development Goals into its environmental guidelines.



The Environmental Management System is integrated in all the Iberdrola Group organizations

Environmental Guidelines of Iberdrola group Environmental Management System

To protect the environment and halt biodiversity loss	6 CLEAN WATER AND SANITATION · 14 LIFE BELOW WATER · 15 LIFE ON LAND
To fight climate change and its effects	13 CLIMATE ACTION
To guarantee Sustainable Modes of Production and Consumption	7 AFFORDABLE AND CLEAN ENERGY · 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
To strengthen alliances with stakeholders for sustainable development	17 PARTNERSHIPS FOR THE GOALS

The biodiversity and environmental commitments acquired are thus transposed into group organisations' environmental management systems, most of them certified (EMAS or ISO 14001), which come under the group's global management system. In these management systems, group organisations define their continual improvement objectives in relation to biodiversity, which materialise in environmental monitoring and control programmes and concrete actions aligned with Action Plan principles.

Iberdrola has biodiversity committees to coordinate actions and programmes for both new and existing facilities, in which the various operational organisations discuss day-to-day management issues and push forward initiatives. Finally, the group's stakeholder relations model helps the organisations integrate stakeholder needs into the decision-making process.

2.1 Biodiversity Management in Iberdrola's main operating Regions

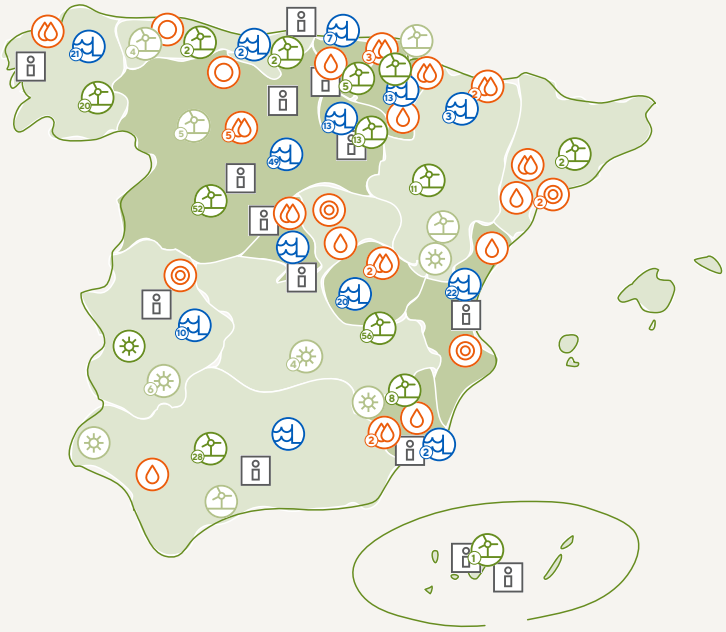
Spain

"Preserving biodiversity is an objective that is integrated into the management of the company's activities."

Biodiversity protection and conservation play a leading role in the management of Iberdrola's activities in Spain. The company has spent many years working on integrating the principles for action defined in the Biodiversity Policies and the environmental directives into its business operations, and these are now an integral part of its management systems, action procedures, plans and programmes. Iberdrola's environmental management system for Spain serves as the framework for its business units' certified environmental management systems (ISO 14001:2015 and EMAS). These systems embody and guarantee fulfilment of commitments and guidelines through concrete actions and programmes.

The Company applies advanced biodiversity-preservation criteria to infrastructure projects by carrying out environmental studies before works begin (even before Environmental Impact Assessments regulations were published). Avoiding protected areas is a big priority when it comes to siting new projects, implementing the first principle of the mitigation hierarchy, part of the philosophy for all environmental impact assessments. In these processes, the company works with stakeholders to look for solutions that aim to reduce impact on the environment to a minimum.

In line with the commitments of the Pact for Biodiversity, the Company promotes new biodiversity management strategies by participating in initiatives for developing methods to assign value to natural capital, improving ecosystem restoration and measuring impacts from a life cycle perspective.



Primary facillities

- 201 Wind farms 6,005 MW
- 164 Hydroelectric plants 10,021 MW
- 7 Combined cycle gas plants 5,695 MW
- 18 Cogeneration plants 353 MW
- 5 Nuclear plants 3,177 MW
- 2 Termal plants 874 MW [1]
- 1 Photovoltaic plant 500 MW
- 13 12 Proyects under construction
- Main offices

Presence areas

Electrical distribution

[1] Request for the closure of coal plants.

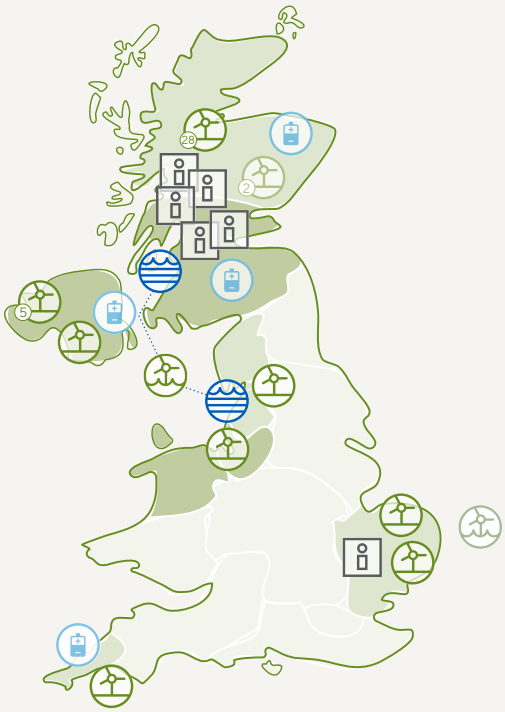
United Kingdom

"Collaboration with the stakeholders is vital to our biodiversity work."

ScottishPower are safeguarding the environment through a framework of complementary environmental management systems (certified to International Standard 14001:2015). Our environmental management systems are aligned with the UN Sustainable Development Goals with a spotlight on preventing pollution and driving continual environmental improvements. Protecting natural habitats and restoring biodiversity lie at the heart of ScottishPower's on-site operations managed by our Energy Networks and Renewables businesses.

Site selection and land management for new projects are also critical. ScottishPower engage with communities, statutory environmental agencies, government advisors and other stakeholders from the design stage through the construction phases to project completion. We ensure that projects are carefully planned to avoid potential harm to environmentally sensitive areas and rare species by adhering to the principles of the mitigation hierarchy. When developing measures to address potential impacts on biodiversity receptors, these principles are applied, in order of preference: Avoidance; Mitigation; and Compensation.

ScottishPower also continue to engage with stakeholders about on-site operations including changing environmental conditions, potential environmental impacts and where appropriate, mitigation. We implement guidance and advice available from government, regulators and industry to minimise and mitigate the impacts of infrastructure operations upon sensitive environmental and other receptors. In collaboration with stakeholders, we also seize opportunities to conduct ground-breaking research and deploy innovative techniques to improve scientific knowledge of species and consequently protect, and where possible, enhance natural capital.



Primary facillities

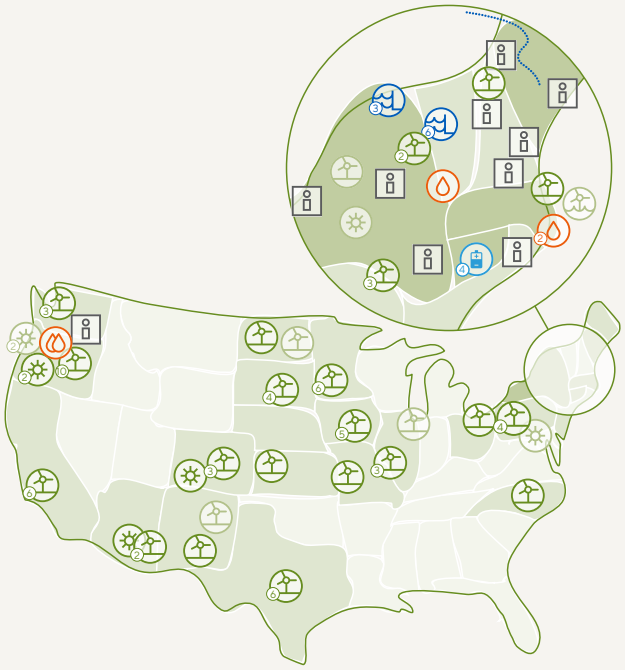
- 39 Wind farms 1,906 MW
- 2 Offshore wind farms 614 MW
- 1 Underwater power line 425 Km
- 2 1 4 Proyects under construction
- Main offices

- Presence areas
- Electrical distribution

United States

Avangrid is committed to sustainable development and respect for the environment and these important values guide our strategy and actions. Preserving ecosystems and biological diversity is an essential condition for sustainable development and for a sustainable energy model. Loss of biodiversity and ecosystem degradation is a rapidly taking place, leading to serious environmental, economic and social risks. Avangrid recognizes the seriousness of these risks and the company's responsibility, as a leading energy company, to take actions for biodiversity conservation that go beyond mitigation damage containment strategies. We do this by:

- Integrating biodiversity preservation in the strategy of the group
- Following a preventive approach that minimizes the impacts of new infrastructure on biodiversity
- Promoting biodiversity offsets and natural capital restoration for impacts
- Protecting species and habitats through positive conservation management
- Raising awareness on biodiversity loss and biodiversity conservation among Avangrid's employees and contractors
- Participating in research, preservation, educational and awareness programs and collaboration with governmental agencies, non-profit organizations, local communities and other stakeholders.



Primary facillities

65 Wind farms 7,259 MW
9 Hydroelectrics plants 118 MW
3 Combined cycle gas plants 204 MW
1 Cogenerations plants 636 MW
4 Photovoltaic plants 130 MW
4 Bateries 13 MW
4 4 1 1Proyects under construction
Main offices

Presence areas
Electrical distribution

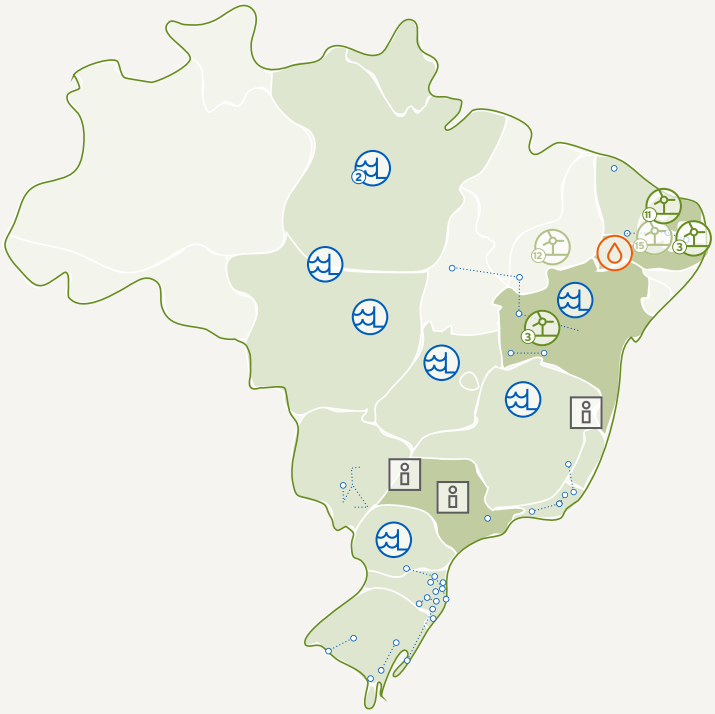
Brazil

In Brazil, while implementing and operating projects, we perform systematic assessments of the impacts of our activities on biodiversity, and we change our methods according to the potential impact of each project and the requirements of environmental agencies in each location where we operate.

This commitment to environmental preservation and the minimisation of impacts on Biodiversity is fundamental, since Brazil is home to a large part of the global biodiversity.

- Projects for the construction of distribution, transmission and substation lines assign priority to the routes that minimise interference with fauna and flora whenever possible.
- During all operational phases, the Power Generation Projects implement environmental programs to apply the spectrum of mitigation, i.e. to avoid, minimise and restore any impacts caused and, when necessary, provide compensation through reforestation and habitat and species' conservation.
- The company complies with its statutory duties and its environmental licensing requirements and never starts activities without first obtaining all the necessary environmental licences.
- Most of the companies of the Neoenergia Group are certified to Environmental Management System standards and comply with the definitions of ISO 14001:2015. All the companies of the Neoenergia group are planning to obtain this certificate.

Neoenergia Group works closely with its stakeholder groups to contribute to establishing reliable metrics for the impacts of commercial activities on biodiversity, making its own contributions to the global challenges of measuring impact and dependence on biodiversity and ecosystem services.



Primary facillities

17 Wind farms 516 MW
8 Hydroelectric plants 3.031 MW
1 Combined cycle gas plants 533 MW
27 11 Proyects under construction
Main offices

Áreas de presencia
Distribución eléctrica

Mexico

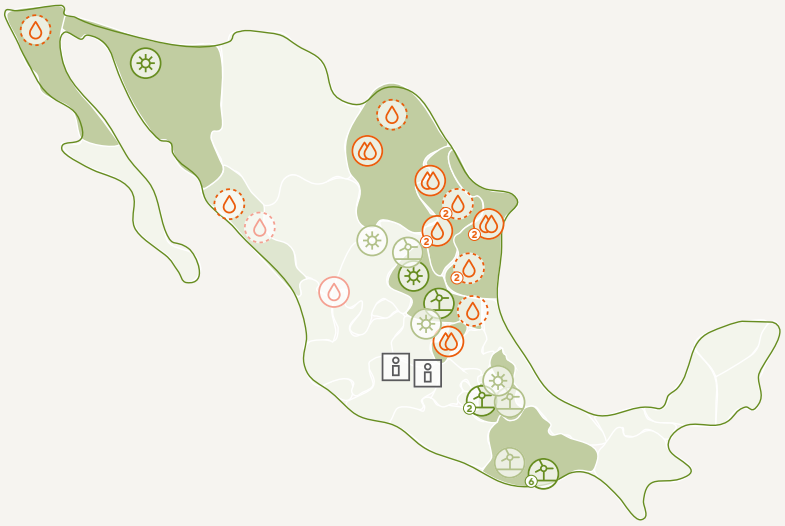
"Support, improvement and care of biodiversity over the entire life cycle of the facilities"

In line with the Group policies in Mexico, we promote projects for support of biodiversity protection, such that measures are implemented both in the steps prior to construction of facilities as well as during their operation.

In the stages prior to the projects, and strictly aligned with the conditions set by the Mexican environmental authorities:

1. Biodiversity studies are carried out in the areas in which future facilities will be built in order to have extensive knowledge of the species found in the surroundings of the facilities and their conservation status.
2. Vegetation and wildlife rescue programmes are carried out, relocating species of special interest from the point of view of biodiversity.

Later, during the operational stage, there are specific projects for the protection of species, as is the case in the Altamira area. There are also reforestation plans aimed at mitigating environmental impact



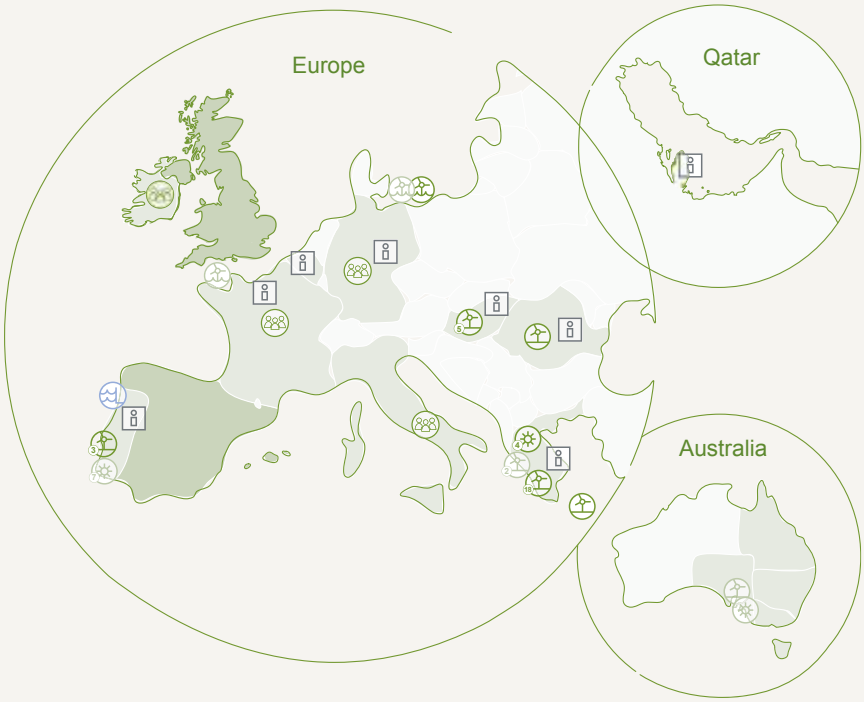
Primary facillities

- 8 Own wind farms 492 MW
- 1 Third party wind farm 103 MW
- **10** Combined cycle gas plants
  - 1,946 MW Own
  - 6,277 MW Third parties
- 5 Cogeneration plants 346 MW
- 2 Photovoltaic plants 368 MW
- 3 3 1 1 Proyects under construction
- Main offices

Áreas de presencia
Zona de proyectos en construcción

Iberdrola Energía Internacional

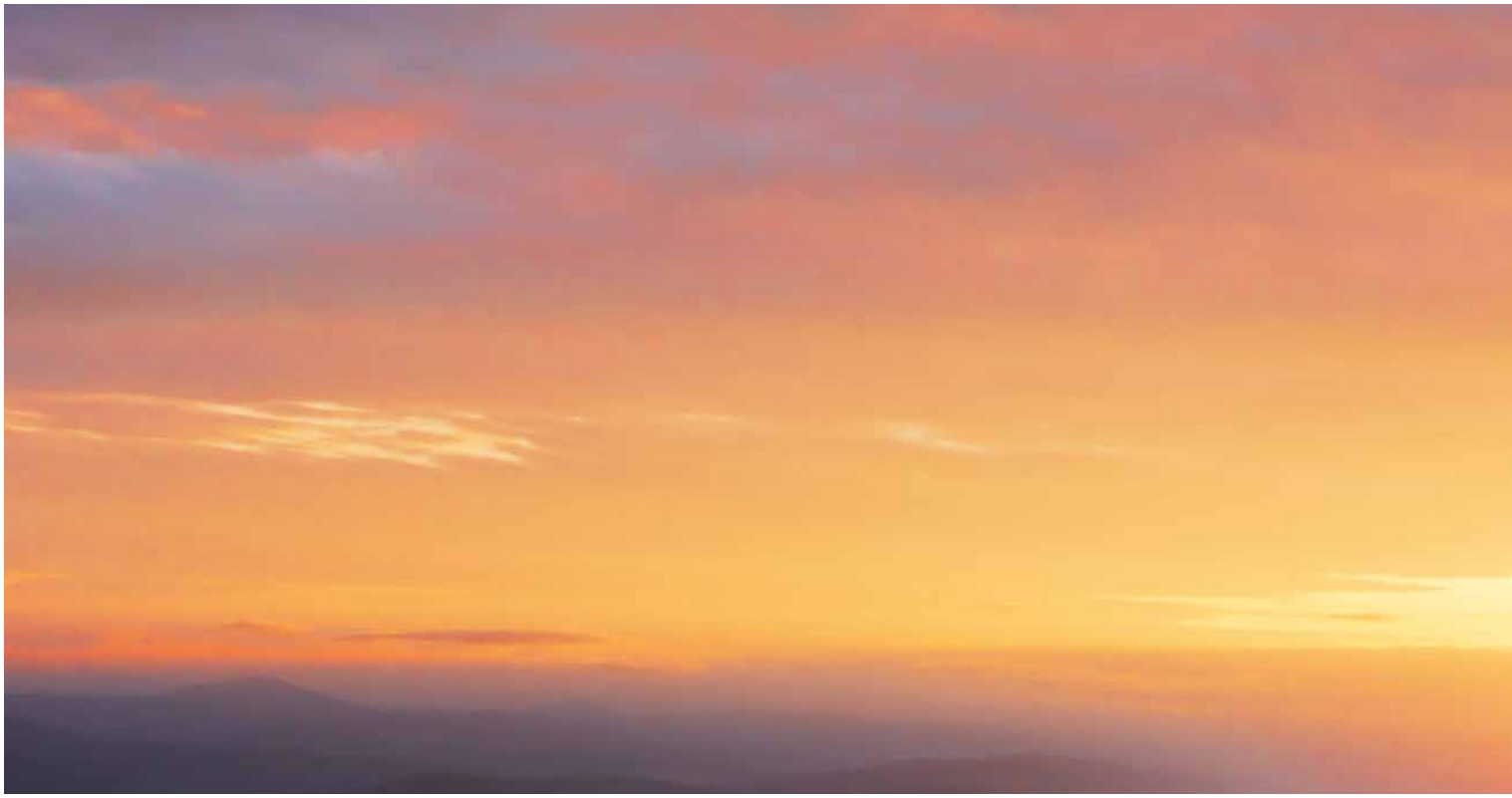
Iberdrola applies its environmental management excellence and the principles of its biodiversity policy.



Primary facillities

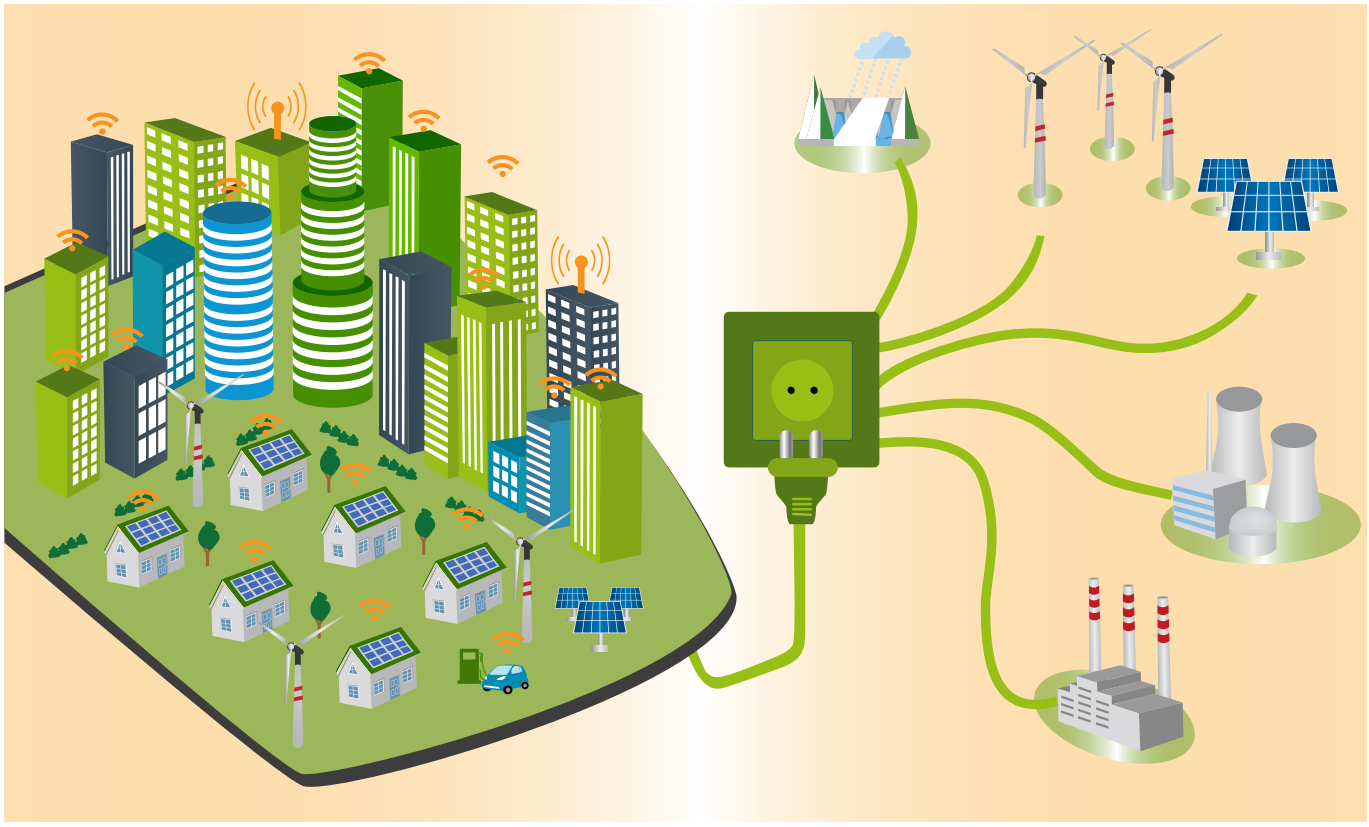
- 28 Wind farms 609 MW
- 1 Offshore wind farms 350 MW
- 4 Photovoltaic plants 6 MW
- 3 1 2 8 Proyects under construction
- Main offices

Presence areas



3. Iberdrola's activities and how they interact with biodiversity

In its electricity generation, transmission, distribution and commercialisation activities, Iberdrola interacts with a diverse range of ecosystems, landscapes and species across a very large geographical area.



These activities require adequate infrastructures which must be built, operated, maintained and eventually dismantled. These infrastructures include thermal power plants, reservoirs, hydro plants, wind farms, substations and underground or overhead power lines. These facilities and structures can be located on remote hills, in forests or on coasts, even in the middle of cities.

3.1 Main Impacts and Dependencies

"IBERDROLA identifies its impacts and dependencies on biodiversity and on natural capital in order to avoid, minimise, remedy or offset them"

Identifying dependencies

In order for us to carry out our operation and maintenance activities, nature provides us with two things – raw materials and ecosystem services. Identifying these dependencies on biodiversity helps us appreciate these services and plan actions to protect and conserve them. Analysing the group activities, the dependencies to the following nature services are identified:

- Waterway maintenance service, by means of the water cycle. The water cycle helps recover the river flow required to produce energy at hydroelectric power plants and for refrigeration processes at thermal plants.
- Climate regulation service, which nature provides through long-term storage of carbon dioxide in soil, plant biomass and the oceans. This service is relevant to all generation facilities.
- Land stabilisation and erosion control. Vegetation on slopes prevents avalanches and landslides. This service is relevant to hydroelectric power plants and transmission and distribution network facilities.
- Protection against floods and severe weather by means of the buffer effect provided by vegetation during these events. This service is relevant to hydroelectric power plants and transmission and distribution network facilities.

In addition, dependencies to abiotic provisioning resources are also identified, the main ones are:

- Water. This resource is the source of production at hydroelectric power plants and is necessary for refrigeration at thermal plants.
- Mineral and non-mineral resources (gas and uranium) as fuels to generate energy at thermal plants.

Identification of impacts:

The most significant overall effects on biodiversity are identified in order to prevent, minimise and correct the possible impacts that the group's activities, products and services could generate during the different stages in the life cycle of its facilities. These effects stem from actions carried out in each stage in the facility's life cycle.

Actions in each stage of the facility that could generate the most significant effects:

DESIGN STAGE

- Site Selecction.
- Construction and technology solutions.
- Selections of materials.

CONSTRUCTION STAGE

- Introduction of vehicles and machinery.
- Opening of roads and disturbance of vegetation cover.
- Extended human presence (wich temporarily affects the behaviour of wildlife species and is generally reversible).
- Changes to the landscape.

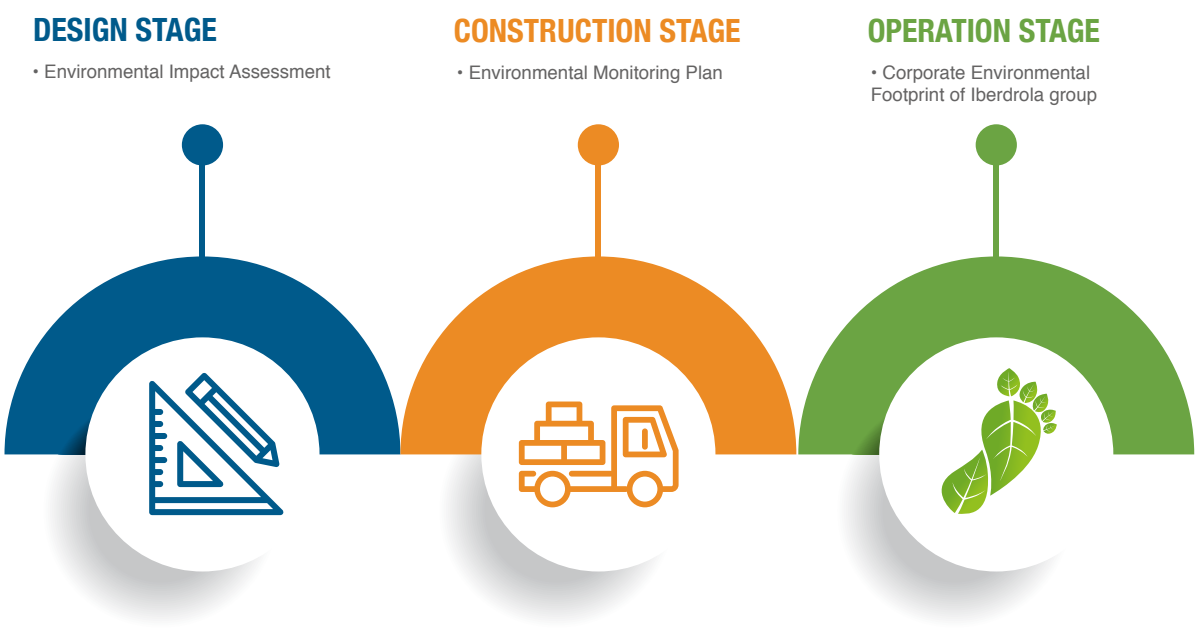
OPERATION STAGE

- Emissions of gases to the atmosphere.
- Changes to the natural regimen of rivers and barrier effect in cases of hydroelectric plants (wich affect the ecosystems and habitats of certain species).
- Animal mortality from collisions and electrocution.
- Disturbance to vegetation for maintenance of power line roads, etc.
- Generation of spills and discharges.

DECOMMISSIONING PHASE

- Use of machinery and vehicles for removing and demolition of existing facillities.
- Extended human presence (wich temporarily affects the behaviour of wildlife species and is generally reversible).

Tools to evaluate the impact of the activities generated in each stage:



The **Environmental Impact Assessment** is a process of gathering, analysing and predicting information so as to foresee, correct and prevent the potential direct and indirect consequences of a project's execution on the environment.

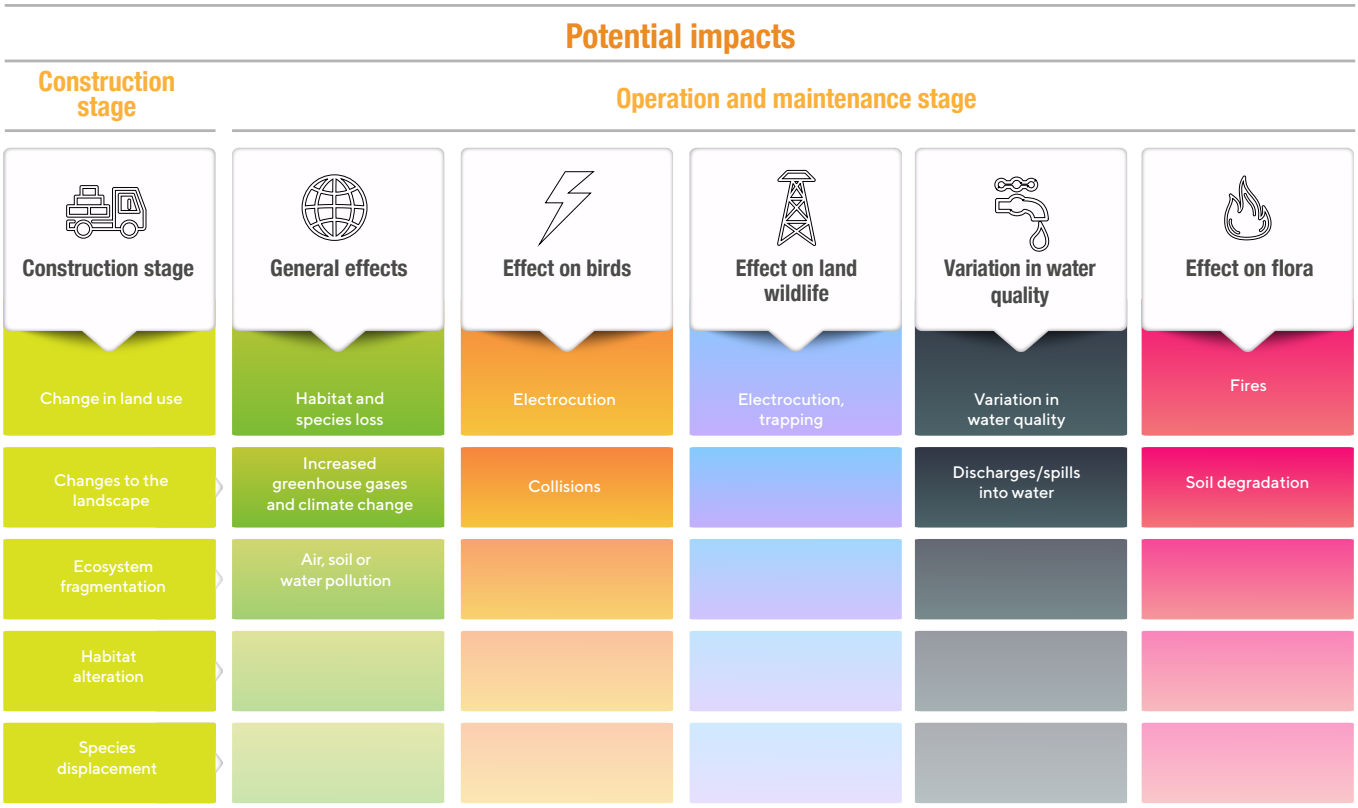
Environmental Monitoring of a project is carried out for various reasons, including to detect and correct environmentally significant deviations regarding the construction plans so as to consider the need to delete, modify or introduce new measures.

The Corporate Environmental Footprint (CEF) is a multi criteria measure of the environmental performance of a goods or services providing organisation from a life cycle perspective.

The main objetive of a CEF is to reduce the environmental impact derived from the organisation's activities.

Potential Impacts

Taking these actions into account, we can distinguish a series of potentially significant impacts on biodiversity stemming from the group's activities, products and services. Impacts relevance depend on the technology and the stage of the project:



Analyse - Measure - Evaluate - Impove

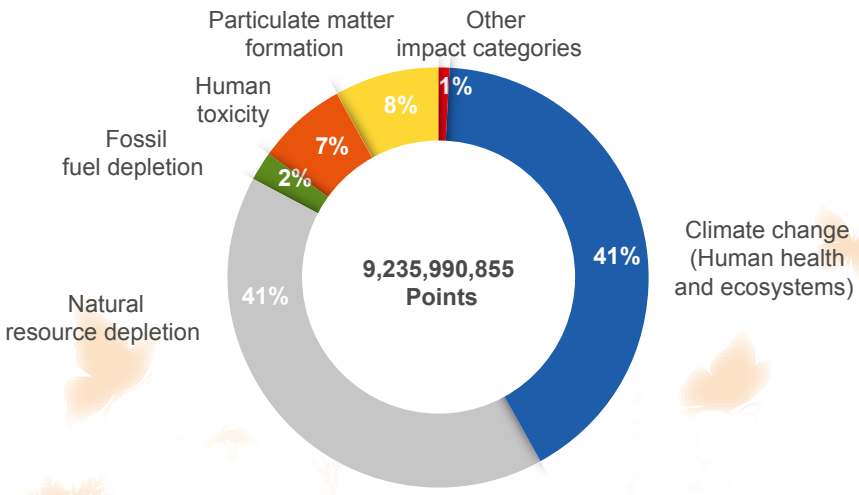
The Iberdrola group calculates its Corporate Environmental Footprint (CEF) to objectively identify and compare the impact its activities have on different environmental impact categories and trace their causes, identifying the environmental aspects and the responsible facilities/technologies/regions.

The CEF, combined with the use of ecosystem services assessment methodology, allows us to establish objectives for improvement in both direct and indirect impacts.

Results of the calculation of the Iberdrola Group Corporate Environmental Footprint from its activities in 2018.

IMPACT CATEGORY	Score (Points)	IBERDROLA GROUP ENVIRONMENTAL FOOTPRINT
Climate change (Human health)	3,507,694,614	
Ozone layer depletion	594,001	
Human toxicity	618,692,737	
Photochemical oxidant formation	151,302	
Particulate matter formation	736,983,003	
Ionising radiation	12,126,453	
Climate change (Ecosystems)	295,405,413	
Terrestrial acidification	480,171	
Freshwater eutrophication	498,045	9,235,990,855
Terrestrial ecotoxicity	1,595,127	
Freshwater ecotoxicity	764,160	
Marine ecotoxicity	130,776	
Agricultural land occupancy	48,613,114	
Urban land occupancy	4,430,858	
Natural land transformation	23,879,535	
Mineral resource depletion	164,020,196	
Fossil fuel depletion	3,819,931,350	

Total Corporate Environmental Footprint



Characterisation of Iberdrola Group's Corporate Environmental Footprint impacts for 2018 (Endpoint)

Thanks to its strategy and environmental management, Iberdrola has managed to reduce its environmental footprint in 2018 by 5% compared to that of 2017. This has been mainly due to the reduced impact of fossil fuel depletion and the increase in energy production from renewable sources.

3.2 Measures adopted in relation to factors that damage biodiversity

The main drivers of biodiversity loss are, according to the latest IBPES Global Assessment Report on Biodiversity and Ecosystem Services[5], **changes in land and sea use, direct exploitation of organisms, climate change, pollution, and invasion of alien species**. It also predicts that climate change will become increasingly important as a direct driver of changes in nature.

Analysing the impact of the group's activities on these drivers will allow Iberdrola to take the necessary steps to prevent or minimise such impact. Set out below is an analysis of threats in Iberdrola's area of influence and **the measures taken to prevent and reduce the impact of its activities**:

Land use changes

In a context of growing energy demand and decarbonisation, new clean energy facilities need to be built that must be respectful of nature. These infrastructures often produce land use changes and potential habitat loss, leading to the displacement of species.

In this sense, Iberdrola has set the objective of **achieving "No Net Loss" of biodiversity by 2030**, working to ensure that new facilities deliver a net positive impact on biodiversity, where possible.

This objective is based on the application of the principles of the mitigation hierarchy in all activities and in the continual improvement of our standards of protection of biodiversity, integrating relevant methodologies to assess attainment of the objective. As a priority, Iberdrola avoids locating new infrastructure in designated conservation areas (protected because of their ecological, biological, cultural and/or scenic value) unless there are no other feasible alternatives.

Areas of special interest for biodiversity without a specific designated protection will also be avoided whenever possible. Designated conservation areas include, amongst others, World Heritage areas, national or regional protected areas and the relevant IUCN categories.

Most impacts that lead to biodiversity loss are avoided through careful site selection during the design stage. At Iberdrola, we rule out protected areas when selecting sites and believe knowledge of our surroundings is the best tool for preventing or minimising negative effects on the environment. In the design stage, appropriate corrective measures are incorporated and mitigating measures are planned which will be included in the environmental assessments of the plans for the new facilities.

Habitat and species loss

A suitable habitat is critical to ensure the survival success of local species, and thus Iberdrola seeks and implements the best techniques available to preserve or improve the habitats surrounding its facilities.

As part of Iberdrola's Action Plan (*see section 4*), operational units carry out specific programmes and actions to prevent, minimise, restore and offset their effects on habitats and species, as well as monitoring their interactions to correct impacts.

- Habitat restoration programmes
- Programmes to improve supports and prevent the risk of birds being electrocuted
- Wildlife tracking and monitoring programmes (mainly birds, chiropters and fish)
- Vegetation management programmes, applying the best techniques to minimise soil loss through erosion and acidification, such as maintaining vegetation cover in solar plants, not using herbicides, and avoiding mass felling of trees in power line corridors to protect against fires.
- Programmes to promote habitat and species conservation .

5. Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany.

Climate change

The company has made public its commitment to decarbonisation, setting itself strict targets:

Reducing its CO_2 emissions by 50% in 2030 with respect to 2007 and becoming carbon neutral by 2050, with its emissions in Europe projected to be almost zero by 2030. Target scopes 1, 2 and 3 have been approved by the Science Based Targets (SBTi) initiative in 2019.

Iberdrola has reduced its direct emissions (Scope 1) by 14% in the past two years, from 15 to 13 million t CO_{2eq}. At the close of the First quarter 2020, of the owned[6] installed capacity of the group, 70% corresponds to renewable energies and 77% is free of emissions.

The commitment to clean energy, and to favouring measures to combat climate change worldwide, has led us to continue reducing our own emissions. In 2019, these fell below 110 grams per kWh, a figure three times lower than that of our competitors. Iberdrola already generates 100% of its energy with zero emissions in countries such as the United Kingdom, Germany and Portugal.

In 2018 and 2019, more than 30 million tonnes of CO_2 were avoided by generating energy from renewable sources.

Twin Buttes wind farm

6 It doesn't include "third-party" installed capacity of some of our plants in Mexico, which are operated under the instructions of the Mexican Federal Electricity Commission (CFE), in its capacity as an Independent Power Producer (IPP).

Pollution

Problems like eutrophication and ecotoxicity are derived from pollution. Iberdrola applies the precautionary principle and one of its environmental guidelines is to avoid water or soil pollution caused by discharges or spills. With this in mind, all Iberdrola group organisations have implemented pollution prevention programmes with actions to improve security and containment measures aimed at preventing damage. These actions include the building of deposits for oil collection in the event of a material spill in substations and transformer stations, the waterproofing of basins or the installation of containment barriers in sensitive environments.

Iberdrola seeks and implements the best available techniques to preserve or improve the habitats in the surroundings of its facilities

Invasive species

Invasive species are animals, plants or other organisms that spread outside of their natural geographical range and into other habitats, or are unusually abundant in their native habitats, affecting ecosystem wealth and diversity.

Controlling these species is crucial to maintaining balanced ecosystems. Iberdrola contributes to reducing these species as part of operating its facilities (vegetation management programmes and zebra mussel control) and through dedicated voluntary actions.

Invasive species freshwater zebra mussel

3.3 Facilities in Protected Areas

The areas Iberdrola operates in are habitats for a variety of wildlife and plants. Some of these areas are under a figure of protection.

Knowing which protected areas or which areas with high biodiversity value the group operates in is crucial to be able to correctly manage its activities, analysing the possible impacts in order to adopt mitigation measures or design restoration and conservation projects.

Reservoirs and power lines are the facilities that occupy the most surface area of protected or with high biodiversity value areas due to the amount of land they take up.

- 33% of the surface area of the reservoirs where Iberdrola operates are located in protected or high biodiversity value areas
- 5 % of its onshore wind farms are in protected areas[7]
- 5% of its power distribution lines and 2% of transmission lines are in protected areas

7. National protected areas and Natura 2000 Network Areas: Sites of Community Importance (SCIs) and Special Protection Areas (SPAs)

Spain

The presence of facilities in protected areas is largely due to the fact that they were built prior to these declarations of protection by the government.

- 63% of the surface area of the reservoirs where Iberdrola operates are located in protected or high biodiversity value areas
- 7% of its onshore wind farms are in protected areas
- 7% of its power distribution lines are in protected areas

The surface area of the company's reservoirs within biosphere reserves, national parks, Ramsar wetlands and natural parks represents 1.2% of the surface area of these protected areas. These include the reservoirs located in the Monfragüe Biosphere Reserve and National Park, the Sierra de Cazorla, Segura y Las Villas Biosphere Reserve and the Arribes del Duero Natural Park.

Facilities within or adjacent to protected areas or high biodiversity value areas

Technology	Location with respect to the protected area	Affected Area/Length	Degree of protection
Hydroelectric power plants reservoirs ◉	Inside	30,769 ha	Biosphere reserves, Ramsar Wetlands, Natura 2000 network, national parks and natural parks. ◉
Power lines	Inside	18,777 km	Natura 2000 network, Ramsar Wetlands, National Parks, Natural Parks, Biosphere Reserves.
Substations	Inside	135 units	Natura 2000 network, Ramsar Wetlands, National Parks, Natural Parks, Biosphere Reserves.
Transformer stations	Inside	8,654 units	Natura 2000 network, Ramsar Wetlands, National Parks, Natural Parks, Biosphere Reserves.
Onshore wind farms	Inside	343 ha	Natura 2000 network, natural landscapes and important bird and biodiversity areas
Nuclear power plants	Inside	115 ha (1 Plants)	Natura 2000 Network
	Adjacent	3 Plants	
Thermal plants[8]	Adjacent	12 Plants	Natura 2000 Network,Protected Landscapes, Biosphere Reserves and Marine Conservation Zones

United Kingdom

ScottishPower Renewables have no operational onshore windfarm sites within designated protected areas however 77% of its windfarms are located within areas of high biodiversity value. 23 of these windfarms are located partly on blanket bogs; a habitat included in the UK Priority Biodiversity Action Plan and in Annex 1 of the European Union's Habitats Directive. Barnesmore windfarm is located within the Barnesmore Bog Natural Heritage Area. Lynemouth windfarm in England is also located in an area of high biodiversity value due to its importance for overwintering swans and geese.

8. Combined cycle power plants, co-generation and coal

East Anglia ONE offshore windfarm lies within Southern North Sea Special Area of Conservation (SNS SAC), formally designated in 2019 after the construction of East Anglia ONE commenced 2018, (*See section 3.5*); and West of Duddon Sands offshore array area falls within the West of Walney Marine Conservation Zone (MCZ) a nationally designated area for habitat and species conservation (under the Marine & Coastal Access Act.) Part of the array area is also within the Liverpool Bay SPA which is protected for birds).

ScottishPower Energy Networks take electricity generated from power stations, windfarms and various other utilities and transport it to customers through its transmission and distribution network. Only 3% of the power lines of the distribution and 6% of the transmission power lines lie with areas designated of significant biodiversity, habitat and landscape value. These includes Loch Lomond and Trossachs National Park, Nature 2000 Network, Ramsar Wetlands, National Nature Reserve and Sites of Special Scientific Interest (covering protected species like badgers, otters and hen harriers).

Technology	Location with respect to the protected area	Affected Area/ Length	Degree of protection
Power lines	Inside	3,815 km	National Park, Natura 2000 Network, Ramsar Wetlands, National Nature Reserve (NNR) and Sites of Special Scientific Interest (SSSI)
Substations	Inside	414 unidades	National Parks, National Scenic Areas (NSA), Natura 2000 Network, Ramsar Wetlands, National Nature Reserves (NNR) and Sites of Special Scientific Interest (SSSI)
Transformer stations	Inside	8,881 unidades	National Parks, National Scenic Areas (NSA), Natura 2000 Network, Ramsar Wetlands, National Nature Reserves (NNR) and Sites of Special Scientific Interest (SSSI)
Offshore wind farms	Inside	36,700 ha	Natura 2000 Network and Marine Conservation Zones (MCZ) East Anglia ONE overlaps with 0.5% of overall area
Onshore wind farms	Partially inside	9,035 ha	Sites of Special Scientific Interest (SSSI)

United States

Only one of the 64 onshore renewable energy facilities (2%) is located within protected areas with high biodiversity. This is the Deerfield Wind Project, which occupies approximately 32 hectares within the Green Mountain National Forest in Bennington County, Vermont.

Deerfield was the first wind project to be permitted and constructed on National Forest land. The lead permitting agency is the National Forest Service.

404 km of the transmission lines (3%) and 15 substations are located within protected areas with high biodiversity. These areas include the State of New York Adirondack Park and Forest Preserve, the State of New York Catskill Park and Forest Preserve, the Letchwork Park, the Champlain - Adirondack UN Biosphere Reserve, and the Connecticut West Rock State Park.

Avangrid Networks also operates and maintains 9 hydroelectric projects, of which 2 are located within the State of New York Adirondack Park.

Technology	Location with respect to the protected area	Affected Area/ Length	Degree of protection
Onshore wind farms	Inside	32 ha	National Forest Systems
Power lines	Partially inside	404km	Protected areas designated by each federal state, which may be Biosphere Reserves, forests, national parks or national wildlife refuges, and those with high ecological value even though they may not have the same level of protection
Substations	Inside	15	Protected areas designated by each federal state, which may be Biosphere Reserves, forests, national parks or national wildlife refuges, and those with high ecological value even though they may not have the same level of protection
Hydroelectric Plant	Inside	2	Protected areas designated by New York State as the Adirondack Park

Brazil

Neoenergia Group is active in biomes considered world hotspots for biodiversity conservation, such as the Cerrado (savanna) and the Atlantic Forest, which increases the Group's commitment to minimise environmental impacts in its operations.

According to the definition of the Brazilian Ministry of the Environment, Protected Areas and Conservation Units are those parts of the national territory with relevant natural characteristics and high biodiversity value, under a special administrative regime, where suitable guarantees for their protection apply.

Facilities that are in or adjacent to protected areas must meet all the requirements required by environmental agencies to ensure the protection of these spaces, which are fundamental to the conservation of biodiversity.

The following is a summary of our facilities in protected areas:

Technology	Location with respect to the protected area	Affected Area/ Length	Degree of protection
Power lines	Inside	27,199 Km	Environmental protection areas (APA)
Substations	Inside	96 units	Environmental protection areas (APA)
Hydroelectric power plants	Adjacent	3 units	Private Natural Heritage Reserves (RPPN), UNESCO Biosphere Reserves, Important Bird and Biodiversity Areas (IBA), High-Biodiversity Wilderness Areas (HBWA), Wildlife Refuges (Revis), Sustainable Development Reserves (RDS)

Mexico

Aligned with the Group's Biodiversity Policy and with the aim of preserving the ecosystem, none of Iberdrola Mexico's thermal generation plants are located in protected natural areas.

The Altamira III and IV plants are close to the Arroyo Garrapatas estuary, part of a series of mangrove wetlands on the coast of Tamaulipas state, which Iberdrola has helped restore by supplying it with water used for cooling.

Technology	Location with respect to the protected area	Affected Area/ Length	Degree of protection
Generation plant	Adjacent	1 Production centre	Areas of environmental protection
Onshore wind farms	Adjacent	1 Wind farm	Regional Ecological Park

Iberdrola Energía Internacional

Country	Technology	Location with respect to the protected area	Affected Area/ Length	Degree of protection
Greece	Wind farms and photovoltaic facilities	Inside	129 ha	Natura 2000 Network and Important Bird Area
Hungary	Wind farms	Adjacent	6 wind farms	Close to Natura 2000 Network and Ramsar sites.
Portugal	Wind farms	Inside	0.12 ha	Nature Reserve.
Romania	Onshore wind farms	Adjacent	1 wind farm	Natura 2000 network
Germany	Offshore wind farms	Adjacent	1 wind farm	Marine Special Protected Area

3.4 Protected Species near Facilities

Knowledge of the species that live in and around facilities is essential to prevent having a negative effect on them, especially if they are protected.

Iberdrola closely monitors the IUCN Red List[9] and national and regional lists to avoid negatively affecting threatened species with habitats in the areas where it operates. The company implements species monitoring programmes and research projects at many of its facilities to learn more about their behaviour patterns and incorporate this knowledge into its operations *(see section 4.2)*.

The table below shows the number of IUCN Red List species identified at Iberdrola facilities, without this meaning that its activities generate any impact or threat to them.

IUCN Red List of Threatened Species

	Critically endangered (CR)	Endangered (EN)	Vulnerable (VU)	Near Threatened (NT)	Least Concern (LC)
Spain	3	16	23	18	242
United Kingdom	-	1	1	4	22
United States - Canada	2	13	13	17	73
Brazil	8	22	43	15	37
Mexico	1	1	2	2	124
IEI	-	1	1	3	55
Total	**14**	**54**	**83**	**59**	**553**

9. International Union for Conservation of Nature

Some of the species are:

Critically endangered:

California Condor *(Gymnogyps californianu)*
USA
@ U.S. Fish and Wildlife Service

Brazilian Merganser *(Mergus octosetaceus)*
Brazil
© Adriano Gambarini

Northern Muriqui *(Brachyteles hypoxanthus)*
Brazil
© Kevinschafer.com

European eel *(Anguilla anguilla)*
Spain
© Biopix.dk

Alzoniella galaica *(Alzoniella galaica)*
Spain
@ Foto: Emilio Rolán

Palo colorado - México (*Ternstroemia luquillensis*)
Mexico
@ Harvard University Herbaria

Endangered:

Whooping crane (*Grus americana*)
USA
@U.S. Fish and Wildlife Service "

Pava yacutinga (*Pipile jacutinga*)
Brazil
© del Hoyo et al (1992 - 2000)"

Egyptian vulture (*Neophron percnopterus*)
Spain and Greece
@seo.org

Dupont's lark (*Chersophilus duponti*)
Spain
@seo.org

Endangered:

Tamarino león de cabeza (*Leontopithecus chrysomelas*)
Brazil
@ Gettyimages

Loggerhead Turtle (*Caretta caretta*)
All the oceans
© Howard Hall

Spanish Algyroides (*Algyroides marchi*)
Spain
© Per Blomberg

Blue Marlin (*Makaira nigricans*)
All the oceans
© Russell Nelson"

Freshwater Pearl Mussel (*Margaritifera margaritifera*)
Europe and USA
© Ian J. Killeen

Orange-spotted Emerald (*Oxygastra curtisii*)
Spain and Portugal
© Jean-Pierre Boudot"

Vulnerable

Spanish Imperial Eagle (*Aquila adalberti*)
Spain
@seo.org

Rusty Blackbird (*Euphagus carolinus*)
USA
© Daniel Jauvin

Red-browed Amazon (*Amazona rhodocorytha*)
Brazil
© Ricardo Marques

Black-handed Titi (*Callicebus melanochir*)
Brazil
© Jacek Kisielewski (CC BY-SA 3.0

Splendid Cruiser (*Macromia splendens*)
Spain and Portugal
© Jean-Pierre Boudot"

Northern Tiger Cat (*Leopardus tigrinus*)
Brazil
@Groumfy69

3.5 Main projects under construction

Spain

Núñez de Balboa Photovoltaic Plant Project

The Núñez de Balboa Photovoltaic Plant is the largest in Europe covering an area of close to 1,000 hectares. It will produce around 832 GWh per year from its 1,430,000 photovoltaic panels installed on 288,000 supports and weighing a total of 12,100 tonnes. The project also includes the construction of a substation and a 12 km evacuation line.

The protection and conservation of biodiversity and the environment have been a constant feature throughout the project from choosing the site, designing and carrying out preliminary environmental impact assessment studies through to executing the project and planning its operation and maintenance.

Most significant biodiversity impacts avoided:

- Siting the project in protected areas was avoided, its final position being 7 km from SCIs and over 14 km from SPAs.
- Impact from the plant and substation was prevented on the sites of community interest of the *Quercus Suber* and/or *Quercus* Ilex woods and pseudo-steppe areas with grasses and annuals of the *Thero-Brachypodietea*.
- Species of orchids were left unaffected[10], by excluding the area in which they were found from the plant construction area.

Orchis papilonace orchid in the region of the Núñez de Balboa photovoltaic plant

10. Listed as Special Interest according to the Regional Catalogue of Threatened Species of Extremadura

Long-eared owl nest 200m protection perimeter sign

Setting free the long-eared owl

- A nesting area of the Montagu's harrier was excluded from the project site and fenced off for protection during the works
- River flood plains and seasonal waterways were unaffected
- Steps were taken to avoid affecting bird life:
  - Bustard, respecting its nesting and mating seasons.
  - Bee-eater. During work surveillance, a bee-eater's nest was discovered and an additional biological halt was instigated until the chicks left the nest.
  - Long-eared owl. During work surveillance, a long-eared owl's nest was discovered and a 200m safety perimeter was established until the chicks left the nest.
  - During works a long-eared owl chick was found and taken to a recovery centre where two long-eared owls that could not be returned to the wild reared and cared for it.

In total, 15 exclusion zones were created in the Environmental Monitoring Programme to avoid impacts to flora and fauna.

Long-eared owl nest in the region of the Núñez de Balboa photovoltaic plant

Minimisation of impacts.

- The transmission line route was modified to minimise the effects on priority habitats and the felling of tree specimens
- The impact on bird life was minimised by placing photo-luminescent markers and bird-protection spirals on the lines.
- Placing of bird-boxes on all the pylons suitable for lesser and common kestrels
- The impact on soil and vegetation was minimised by retaining the ground cover vegetation in the plant's construction area, removing only the vegetation in access routes.
- Impact on the ecosystem providing food for livestock was minimised, since sheep will be allowed to graze upon completion of the plant, which will also be useful for tending the vegetation and avoiding the use of herbicides.

Nesting boxes installed on support 18

Mitigation

- Restoration of the areas occupied by works by means of landscaping, topsoiling and replanting.

Compensation for impacts, resulting primarily from land occupation and targeted at species conservations:

- Creation of a total of 90ha of agro-environmental management zones for the benefit of the Montagu's harrier
- Creation of 2 reserves for steppe birds
- 2ha natural vegetation reserve
- Conservation plan around two livestock ponds
- Measures to support birdlife and chiropters: creation of kestrel nesting boxes and waste heaps for carrion birds, installation of 20 chiropters boxes
- Radio tagging of 4 little bustards

Positive impacts on biodiversity

- The protection of existing water courses inside the project perimeter has encouraged the presence of aquatic birds, which have even nested within the plant

Pond inside the plant

- The ceasing of agricultural activity, and with it the use of fertilisers, biocides and herbicides, together with the fact that the shade provided by the panels themselves will increase soil humidity, will all encourage the development of local flora and in time endow this ecosystem, hitherto virtually a monoculture, with greater biodiversity

Vegetation topsoil cover

Sheep grazing to clear vegetation around the photovoltaic plant

United Kingdom

East Anglia ONE Offshore Wind Project

East Anglia ONE, located 43km from coast, consists of 102 wind turbine generators (WTG) of 7MW each, providing an installed capacity of 714MW. A network of inter-array cables carry power from the WTGs to the offshore substation. The project area overlaps with designated sites of national importance, requiring that works are planned carefully to avoid potential harm to environmentally sensitive areas and rare species.

- The East Anglia ONE export cable corridor intersects with the ***Outer Thames Estuary Special Protected Area*** which supports a population of wintering red-throated diver which is considered sensitive to disturbance and displacement from vessel presence.
- ***Southern North Sea Special Area of Conservation (SNS SAC)*** contains two separate areas which are important for harbour porpoise during the summer and winter periods. Approximately 200km² of the East Anglia ONE project is located within the southerly part of the SNS SAC (winter component) designated to protect harbour porpoises, comprising 0.5% of the total SNS SAC designated area The site was formally designated in 2019 after the construction of East Anglia ONE commenced 2018 .
- The East Anglia ONE export cable corridor crosses ***Bawdsey Cliffs SSSI Bawdsey Cliffs SSSI***.

Biodiversity has been considered through the entire project pipeline and measures to avoid and minimise impacts have been implemented:

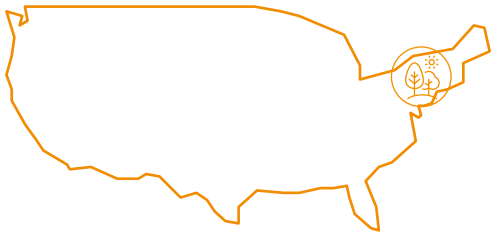
- **Decision-making throughout the project** – Full Environmental Impact Assessment was undertaken during the development of projects. The East Anglia ONE consent application documents were prepared by experts in their specialist subjects and reviewed, and approved, by government regulators including the Environmental Statement and Habitat Regulation Assessment.
- **Design and construction** – Ecological Monitoring Plans and mitigation plans/ measures have been implemented to avoid or minimise potential adverse effects from construction activities including following best practices and industry guidance and implementation of European Protected Species Licences.
- **Those planned for operation and maintenance** – Post-construction monitoring plans and best practice guidance to avoid disturbance to protected species as appropriate.

Measures to avoid and minimise impacts on the designated sites:

- Avoidance of effects on red-throated divers through appropriate management of vessel traffic.
- Specific Marine Mammal Mitigation Protocol (MMMP), approved prior to the start of construction, was implemented during offshore construction to avoid or minimise the potential risk for injury or disturbance to marine mammals.
- Key precautions were secured throughout the project:
  - no concurrent piling for jacket foundations installation; and
  - spatial/temporal restrictions for offshore construction activities during the winter period.
- The ground-breaking digital aerial image data gathered during the ecology surveys for East Anglia ONE over many years has helped highlight knowledge gaps in seabird ecology and marine mammals as well as uncertainties around the significance of impacts of offshore wind to the marine environment. Investigative work continues through the planned post-construction monitoring surveys and innovative research & development projects deployed at East Anglia ONE continue, looking at underwater noise and scour protection.
- A live partnership project (Q1 2020) aims to use underwater noise data collected before, during and following foundation piling installation for East Anglia ONE to determine the impact on distribution of harbour porpoise, and how models can be improved to better predict reactions of individual porpoises, and the overall effects on harbour porpoise populations.

Harbour Porpoise @ Scottish Association for Marine Science

Estados Unidos



Rochester Area Reliability Project

RG&E's Rochester Area Reliability Project (RARP) involves the construction, reconstruction, operation, and maintenance of approximately 27.6 miles of 345- and 115-kilovolt (kV) transmission lines, improvements to three existing substations in the Towns of Gates and Henrietta, and the City of Rochester; the construction of one new 345-kV/115-kV substation (Station 255) in the Town of Henrietta; and upgrades within the fenced-in areas to existing substations in the Towns of Lewiston and Somerset in Niagara County. The new transmission lines and substation were designed and routed along existing utility and transportation corridors in order to minimize to the maximum extent possible environmental, agricultural and visual impacts. However, there were certain unavoidable impacts to State and Federally regulated wetlands, such as the conversion of forested wetlands to shrub-brush wetlands. To protect these resources, RG&E is using timber mats, silt fencing, and other environmental controls. To further mitigate disturbances, RG&E agreed to go beyond a one for one replacement rate and mitigate at a ratio of 1-1/2 acre for every one acre of forested wetland converted. The total mitigation plan for the RARP consisted of the creation of a new 12.6 acre wetland at Ballantyne Road, re-planting 17 acres of a Department of Environmental Conservation (DEC) regulated wetland (DEC Wetland CI-32), and enrolling 34 acres into a conservation easement with enhancements.

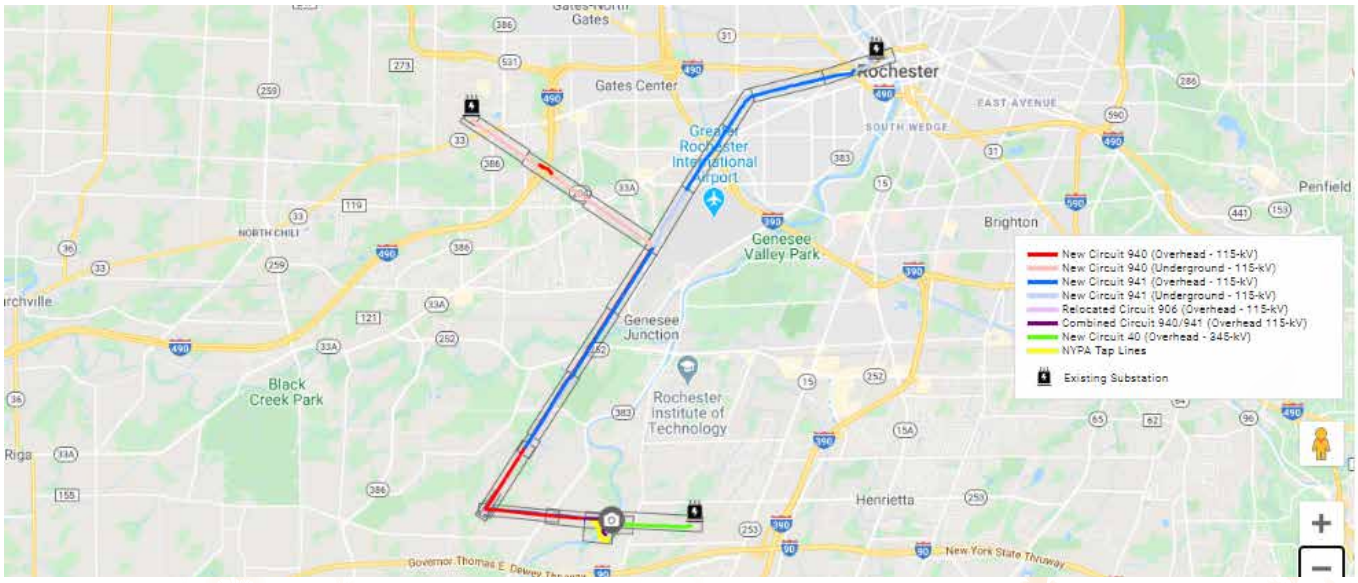
RG&E purchased 38.6 acres of land at 525 Ballantyne Road in the Town of Chili for the purpose of creating 12.6 acres of new free-standing and fully functional wetlands, which consists of ponds, upland areas, habitat enhancement measures and the planting of 440 trees. The land, a neglected sports park, was ideal due to its hydrology, close proximity to the project and its availability for sale. It also has the same drainage patterns and hydrology characteristics as the impacted land, and is adjacent to existing wetlands in the Black Creek watershed. The Big Shell Bark Hickory tree, an endangered tree, was also planted at a 5:1 ratio to offset the cutting of this tree on the Rights-of-way. The area was planted with tree species which are native and tolerant of wetland sites such as Red Maple, Silver Maple, Swamp and White Oak, as well as a diverse mix of wetland grass seed to ensure true wetland diversity. RG&E will monitor the success of this new wetland for 10 years.

In order to mitigate impacts to wetlands disturbed related to the site location of the new Station 255, RG&E agreed to plantings at DEC Wetland CI-32. The mitigation site was 17 acres and RG&E agreed to plant 300 trees and shrubs per acre (meeting a 1.5:1 mitigation ratio would have only required 14 acres). Ash trees were initially cleared to control an invasive species. The area was then planed with a variety of shrubs, such as chokeberry, dogwood, viburnum, winterberry, hazelnut and elderberry, and a variety of trees, such as maples, oaks, willow and birch. RG&E will monitor the success of the plantings for 5 years.

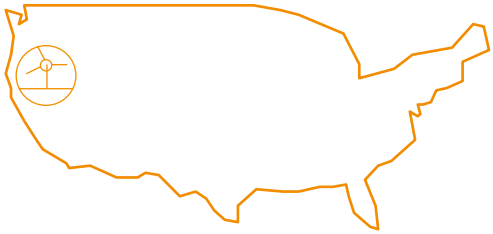
CI-32 Wetland Plantings

Ballantyne Road – Wetland

RG&E rerouted the original proposed route of the transmission lines to remain along an existing utility corridor and a railway corridor to avoid an agricultural field. As a result, the line led to the conversion of approximately 6.5 acres of land protected by a conservation easement under the Natural Resources Conservation Service (NRCS) Wetland Reserve Program from forested tree edge habitat to scrub-shrub wetlands. In order to mitigate and receive an amendment to the conservation easement, the owner of the adjacent property, on behalf of RG&E, donated 32 acres to a permanent wetland easement at no cost to NRCS (costs borne by RG&E). RG&E will install plantings, wildlife enhancements, and invasive species control at a 3rd location along the RARP transmission line in 2020. RG&E will monitor this site for a minimum of 5 years.



Montague Onshore Wind Project



Avangrid Renewables adheres to its Corporate Work Plan and the U.S. Fish and Wildlife Service Wind Energy Guidelines to avoid or minimize and mitigate impacts to wildlife during construction. Specific practices may include modifying project layout based on site-specific conditions and studies indicating presence or potential presence of protected areas or species, altering construction schedule to avoid impacting species during sensitive times of year (e.g., nesting, breeding), establishing setbacks from sensitive species (e.g., nests) and habitats, providing environmental training for on-site staff and contractors, and implementing environmental monitoring and best practices to reduce impacts to sensitive habitat and species of concern. In addition, Avangrid Renewables includes language in Engineering, Procurement, and Construction contracts requiring contractors to adhere to applicable permit conditions and design standards (e.g., Avian Power Line Interaction Committee *Suggested Practices* (APLIC 2006)) to minimize impacts to wildlife from electrocution on overhead collector power lines and substations.

Construction on the Montague Wind Project (56 WTG, 202.85MW, Gilliam County, Oregon) was completed in 2019. The project is within the range of sensitive species like the Washington ground squirrel (Oregon state endangered).

Washington Ground Squirrel (Urocitellus Washingtoni) @ Washington Department of Fish and Wildlife

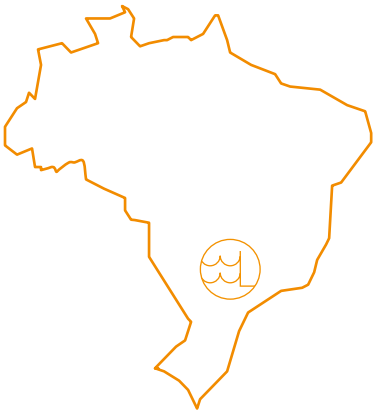
Prior to construction, Montague completed multiple years of surveys to map squirrel habitat and worked closely with state wildlife agencies on ways to avoid and minimize impact. An outcome of this effort was to redesign the project's transmission line route that originally crossed suitable ground squirrel habitat. While the new transmission line route added complexities to project construction, it allowed for complete avoidance of impacts to this sensitive species. In addition, Montague shifted turbines out of native grassland and shrub-steppe habitat to agricultural land (dry-land wheat), which is considered to be less suitable for wildlife. By this careful turbine siting, Montague was able to reduce habitat mitigation needs by more than 90% as compared to the original project layout. For the remaining unavoidable habitat impacts, Montague established an 18-area off-site habitat mitigation area that will be monitored for the life the project to ensure that habitat restoration goals are realized.

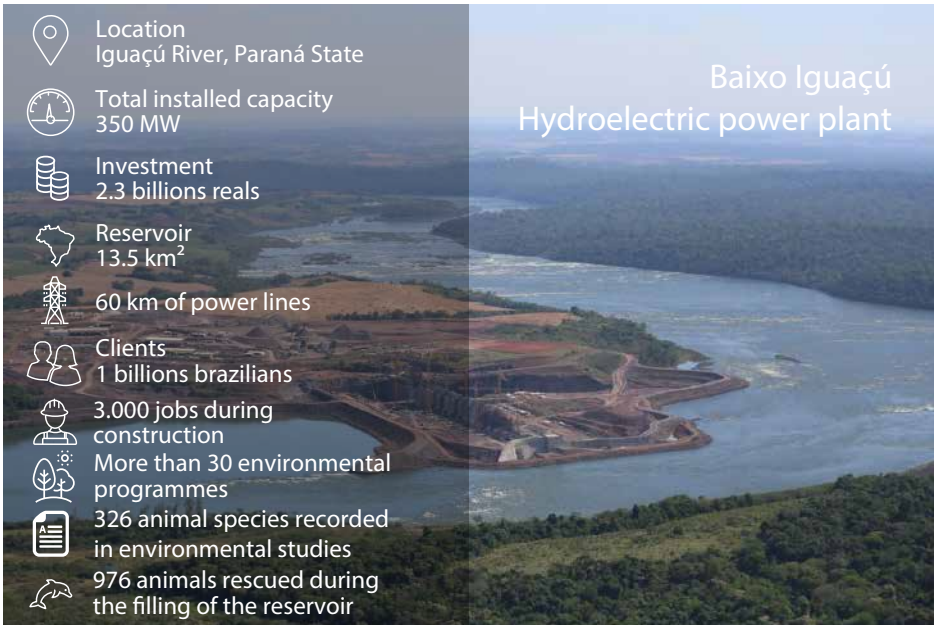
During construction, Montague implemented alternative measures and seasonal timing restrictions to minimize disturbance to nearby nesting raptors. Frequent monitoring of nest sites over the duration of construction confirmed that these measures were successful, as all monitored nest sites reached fledging stage. Per project permit conditions, Montague implements a Wildlife Monitoring and Mitigation Plan to monitor and assess impacts to wildlife during project operations, in addition to activities associated with Avangrid Renewables' Wildlife Protection Program. Montague plans to monitor the revegetation of areas temporarily disturbed by construction to ensure that habitat is restored to its previous condition and will track Washington ground squirrel colonies overtime to determine if the project has any long term effects.

Montague has avoided or minimized project impacts to wildlife and habitat through:

1. Pre-construction assessment and project design: wildlife, habitat, and sensitive species surveys completed prior to construction enabled siting of project components to avoid or minimize impacts to sensitive habitat and species;
2. Protection of native habitat as mitigation: as not all project impacts could be avoided, 18 acres of native scrub-shrub and grassland habitat outside the project were preserved and enhanced through exclusion of grazing, vegetation surveys, and monitoring for life of project.
3. Agency consultation throughout: measures to avoid, minimize, and mitigate impact to wildlife and habitat were developed, discussed, and approved by applicable authorities throughout project development.

Brazil





Baixo Iguaçu Hydroelectric Power Stations

In 2019, the Neoenergia Group started operating the Baixo Iguaçu hydroelectric power plant, located in the state of Paraná, in the southern region of Brazil.

The project offers approximately 1 million Brazilians clean, accessible and renewable energy, strengthening a sustainable energy model that prioritises human well-being and the conservation of the environment.

Also in the planning phase, the Environmental Impact Study and the respective Environmental Impact Report were developed. These are technical and multidisciplinary documents aimed at a broad evaluation of the environmental impacts of the implementation, operation and decommissioning of the project, indicating actions, measures and environmental programmes to compensate and mitigate the negative impacts and enhance any positive impacts that were identified.

Before the construction work began, an inventory of the region's fauna was carried out, where more than 320 species of animals were recorded in the project's area of influence. The Baixo Iguaçu team of biologists carried out several actions to monitor and rescue fauna, especially in the areas of the construction site and the reservoir of the Baixo Iguaçu hydroelectric power plant.

The biologists of the Baixo Iguaçu hydroelectric power plant rescued more than 970 animals and even halted the filling of the reservoir to rescue animals that were isolated and could not escape to adjacent areas. Extensive surveys were carried out on all arms of the reservoir, and animals rescued in good condition were transferred to the areas around the reservoir, and animals in need of specific care were sent to the Wild Animal Triage Centre (CETAS) for rehabilitation and subsequent release.

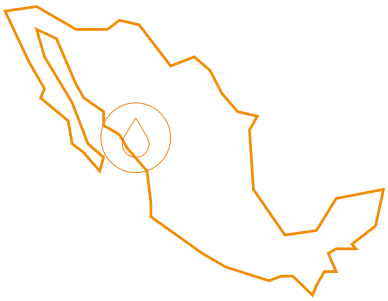
Tegu *(Salvator merianae) rescued and treated at CETAS*

Another point worth mentioning is the creation of a Biodiversity Corridor to link with other forest areas, the project's permanent conservation areas, to the protected areas of the Iguaçu National Park. The actions for the creation of this corridor have already been defined and when the planting activities are carried out in their entirety, this corridor will allow the displacement of fauna among the forest remnants, allowing genetic exchange between the specimens of the different areas, providing a favourable habitat for the development and conservation of species.

Baixo Iguaçu also uses technology for conservation services through the development of monitoring programmes for endemic species in the region of the project. To monitor the migratory habits of the Iguaçu long-whiskered catfish (*Steindachneridion melanodermatum*) the fish were caught and combined telemetry transmitters were inserted in them, providing previously unknown information on the habits of the species. All actions were carried out in cooperation with the environmental agency responsible for licensing the project.

Iguaçu long-whiskered catfish

Mexico



Noroeste 42 Topolobampo II Combined Cycle Project

The Noroeste 42 Topolobampo II CC project (Sinaloa, Mexico), with a gross generation capacity of 1091.59 MW and covering a total area of 45.56 ha (main and subsidiary infrastructure), has taken into account biodiversity protection at all its development stages.

At the conceptual stage of the project, when the potential sites for the facility were analysed and chosen, to avoid it being built in a protected area.

Noroeste 42 Topolobampo II Combined Cycle Plant

Later, in the engineering stage, the construction of the facility was designed in such a way as to protect the ground forestation as much as possible. This achieved:

- **In the combined cycle area**: Retention of 63.9% of the sarcocaule scrubland (which houses species catalogued by the Mexican standard NOM-059-SEMARNAT-2010) since it was only necessary to remove 3,833ha of the 10,614ha authorised for the change of use of forest land.

- **Regarding the transmission line**: Retention of 99% of the existing forest cover (0.7411ha). Only 0.0075ha was removed.

Likewise, the combined cycle was designed under the "zero discharge" scheme, so that as well as avoiding any discharge into the habitat of the area's wild fauna and flora it was also possible to maximise the water reuse and to reduce the water supply requirements from the environment for use in the plant. This has resulted in a reduction in the water footprint of the combined cycle throughout its entire working life.

The following were produced before starting work on the project:

- Reforestation programmes to establish compensation areas for the removal of surface vegetation in the project areas.
- Soil and water conservation programmes to compensate for infiltration losses and increased erosion in the area due to the removal of surface vegetation.
- Relocation and rescue programmes for flora and fauna to safeguard the most important specimens in the areas affected by the project.

These programmes were carried out just before and during the whole construction process of the combined cycle plant. At this stage in the works, compliance with these plans and the other environmental protection measures included in the work's environmental management plan were monitored.

Under the wild fauna programme 150 individuals were successfully rescued and relocated.

With regard to reforestation during the construction of the plant, seeds and cuttings of some species of bushes were gathered for propagation. Three temporary plant nurseries were set up using reusable materials from the works. The first nursery was used for seed germination, the second for the protection of grafts and cuttings and the third for hardening of the plants being grown. With these activities 38.259ha are in the process of being reforested, which will help to avoid soil and water loss and will allow the area to improve gradually, thereby potentially making this a future area for obtaining germplasm and reproducing species with the aim of recovering deforested areas in the State of Sinaloa.

Additionally, specific awareness-raising activities were undertaken during the works stage both for contractors and for Iberdrola's own staff by means of environmental talks and the placing of wild fauna and flora protection posters.

The specific biodiversity preservation and protection programmes together with other plans (waste management) and environmental control measures (such as dust suppression and the protection of natural run-offs) form part of the global environmental management applied on the site and established in the works environmental management plan, formulated following the ISO 14001 standard.

View of staff with a sample of Sangregado tree ready for transplanting

Monitoring of samples of wild flora relocated in March, 2019 (Ocotillo)

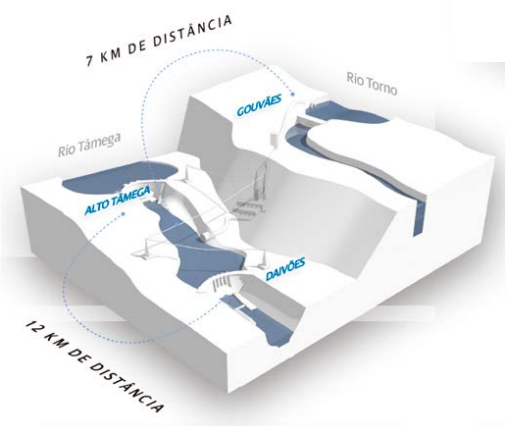
Rest of the world (IEI)

Tâmega giga battery

Iberdrola is well into the construction stage of the hydro complex of Alto Tâmega, in the North of Portugal, one of the biggest to be built in Europe in the last 25 years, with a total installed capacity of 1,158 MW. This impressive construction work comprises three hydrological exploitations (Gouvães, Daivões and Alto Tâmega), with their corresponding evacuation lines, substations and auxiliary facilities (accesses, quarry, dumps, works facilities areas, etc.).

Támega Complex
Bird´s eye view

- Location
  Támega River, Northern Portugal
- Capacidad total instalada
  1,158 MW
- Power Production
  1,760 GWh per year
- Job creation
  13,500 direct and indirect jobs
- Investment
  More than 1,5 billion euros



The development and construction of these infrastructures requires detailed environmental impact studies with associated specific studies on wildlife, flora, habitats, water systems, etc., in order to determine their possible impact on biodiversity and thus prevent, mitigate and if necessary compensate for any damage caused.

The project occupies a total area of approximately 1000 hectares and is partially located in an area designated a Site of Community Importance (**SCI**), covering approximately 180 hectares of the Alvão Marão SCI (code PTCON0003) derived from the implementation of the Gouvães dam and reservoir. The site for this development was determined by the Portuguese government itself in the conditions of a public tender as part of the National Plan for Dams with High Hydro-Electric Potential (PNBEPH) so it was not possible to change its location.

Nevertheless, since being granted the concession, Iberdrola has prioritised a series of criteria to help the conservation of biodiversity and the environment. These principles have been followed throughout all the stages of the project, from the study of alternatives to the construction stage which we are now in.

This has meant that, **during the design and environmental authorisation stage of the project** a number of aspects have been taken into consideration to minimise the impact:

- Impacts on protected environments have been minimised by limiting the proposed area as much as possible and evaluating alternative sites.
- The surface area to be used during the construction stage was optimised and reduced to a minimum.
- Impacts on protected flora and fauna were reduced (e.g. water courses populated by *Galemys pyrenaicus*, *Margaritifera margaritifera*, the habitats of *Quercus suber*, ground occupied by *Phengaris alcon*), as well as the natural heritage.
- Additional design elements were considered for some elements within the SCI such as special markings on the power transmission lines to minimise their effects on birds.
- Particular specifications were included in the tenders for the design of electro-mechanical equipment focusing on compliance with best environmental practices (e.g. the choice of materials with the least environmental impact, limits on the speed of flow through generator input grilles for the protection of aquatic fauna, etc.)

- Some civil works items, e.g. the design of the Daivões weir was adapted so it could serve as a fish ladder.
- The routes of the electricity cables were modified in some places to reduce their impact on certain species (wolf, *Quercus suber*, etc.) or protected zones (SCIs).

Going into the construction stage, starting in December 2014, a series of impact mitigation measures were applied, both demanded by the Environmental Impact Statement, as well as good environmental practices in all relevant aspects (water, air, noise, heritage, fauna/flora and effect on soil). These have all been included as contractual documentation in all project tenders and are obligatory. In addition, compliance with these minimisation measures is reported to the Portuguese environmental authorities every quarter.

This list is no more than a sample of the significant measures taken to reduce the impact of the project:

- On-site environmental monitoring: 8 environmental specialists,
- > 200,000 h of environmental surveillance,
- > 10,000 hrs of training.

Team of environmental specialists on a works monitoring mission

- Licensing by Iberdrola for water collection and disposal points for the works (>45 points). Rigorous controls on volumes and monthly analyses have been kept up.
- Also, changes to the systems have been required for greater consumption efficiency and an increase in reuse (e.g. reduction of water consumption in the quarry of over 80% by replacing pressure filters with geotubes).
- Waste management: 99% of CDW evaluated, 82,000m³ of recycling used on the works, >270,000m³ of other materials reused
- Signage at work stations about elements to be protected (tree species, protected flora, chiropter refuges, etc.)
- Zone-specific obligations in equipment maintenance and in storage and segregation of waste at each work station, with measures to contain spills and avoid pollution of water courses.
- Obligatory measures to minimise fire risk in any work equipment used and to trim excess vegetation in proximity to the works.
- Relocation of fauna and flora affected by the works. So far over 2000 amphibians, 23,000 freshwater mussels, 41,000 fish and around 1,500 individual of protected flora, as well as 500 specimens of various reptiles, birds and mammals have been transferred.

Examples of freshwater mussels transferred (*Anodonta anatina*, and *Margaritifera marfaritifera*), amphibians rescued and flora relocation operations

- Impact minimisation measures such as regular water-spraying, use of enclosed transportation, installation of wheel-washing systems on leaving work stations, etc.
- Monitoring of air, water, noise (>175 points):
  - Monitoring of water quality of the main rivers and their tributaries, with monthly and quarterly measurements.
  - Monitoring of subterranean water quality and quantity in the vicinity of the works (wells, springs, boreholes, mines, etc.)
  - Monitoring of air quality and particulate control in selected premises.
  - Regular control of ambient noise at sensitive receivers around the works

Water monitoring. Gathering of river water, noise and air quality samples

- Ongoing fauna and flora monitoring:
  - Species-specific programmes (mammals, Iberian wolf, birds, chiropters, fish, freshwater mussels, invertebrates, protected flora, otter, Pyrenean desman).
  - 20 biologists employed on an ad hoc basis, >30,000km in transects, >1,000 sampling stations, >80,000h of monitoring stations.

Monitoring of freshwater mussels and dippers

On the other hand, with respect to biodiversity, work is underway on a number of **compensation plans and measures** approximately equivalent to the flooded area of 1000ha with a total tree-planting programme of over 200,000 items. In the choice of sites, priority has been given to impoverished, fire-ravaged and eroded areas whilst at the same time an attempt has been made to group the actions together in zones, rather than spreading them about, in order to maximise their biological impact.

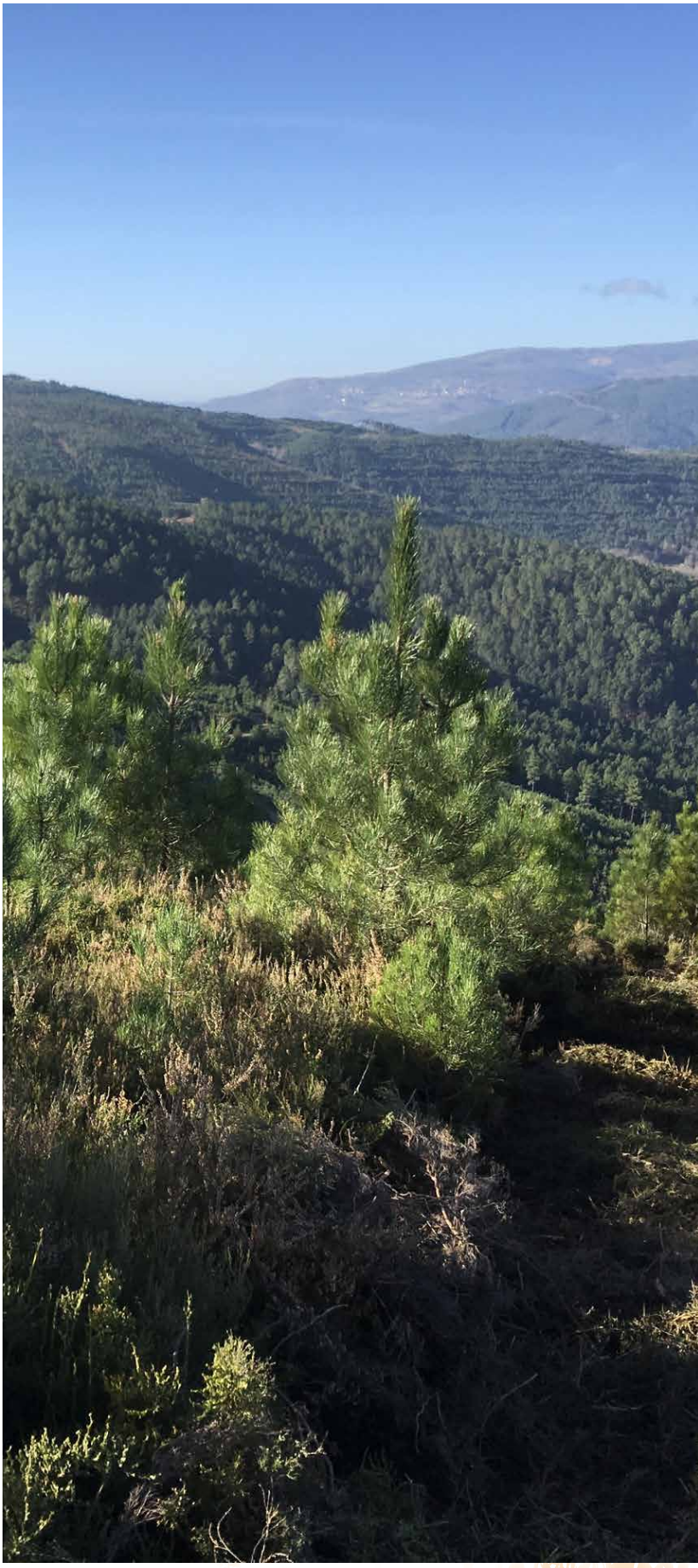
This "Flora and Fauna Compensation Plan" has been agreed between the Portuguese environmental authority and Iberdrola and consists of 29 specific compensatory measures which can be grouped into the following lines of work:

- Planting of local species and protected flora
- Increase in the ability to accommodate and provide food for fauna
- Increase in cross-connectivity between the river valley and other forest zones
- Recovery of the river valley, banks and the connectivity of water courses
- Trout restocking
- Improvements in the population of protected fauna: *Galemys pyrenaicus* and *Phengaris alcon*
- Improvements in aquatic ecosystems (ponds, slow-moving sections, spawning grounds)

Protected flora in the vicinity of the works and also subject to compensation measure planning. *Armeria humilis, Narcissus bulbocodium*

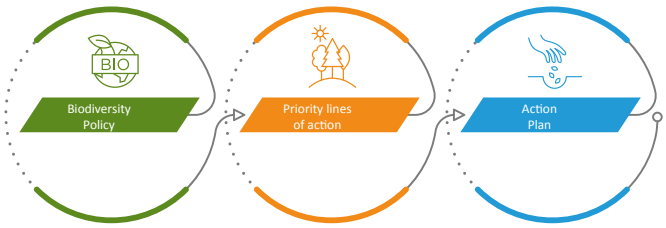
Protected fauna for which compensation measures have been devised: *Phengaris alcon* and *Margaritifera margaritifera*

Finally, we may add that other measures have been put in place to promote and protect the natural, cultural and socio-economic heritage.



4. Biodiversity action plan. Activities 2018-2019

Iberdrola's biodiversity action plan develops the priority action lines of the policy for management at operational unit level. This strategic action plan is translated into programmes of activity and concrete actions. During this period, we have run more than 1.450 actions of biodiversity protection, more than 640 and more than 810 in 2019.



Biodiversity Action Plan

Plans

- Impact, prevention, reduction and compensation
- Knowledge and conservation of the surroundings
- Collaboration with stakeholders to enhance biodiversity
- Awareness and communication

Sub-plans

- Restoration and compensation of habitats and species
- Direct protection of fauna
- Direct protection and management of vegetation
- Prevention of impacts to the soil
- Prevention of impacts to water

4.1 Impact Prevention, Reduction and Compensation

Protecting biodiversity, applying the mitigation hierarchy (avoidance, minimization, restoration and, as a last resort, offsetting) throughout the entire life-cycle of facilities, making sustainable use of natural capital and encouraging value creation

4.1.1 Actions for the Restoration and compensation of habitats and species

Iberdrola carries out a variety of actions to protect and restore the varied habitats that surround or are affected by the Group's facility construction operations.

During this two-year period, more than 125 restoration and compensation actions have been carried out on more than 3900 ha We have planted more than 2.5 million trees, bushes and other species in this period.

Spain

- Iberdrola has afforested 438 ha on its own land in Spain and during this period, maintenance activities have been carried out on these areas. In addition, afforestation works were carried out on 17 ha and a total 7,430 trees and bushes were planted as compensation works due to Project's impacts. 10 actions of the environmental recovery program that the plants have implemented were also carried out.
- In addition to these actions, in this period 49.5 ha of the Forest Defense-Iberdrola program were afforested as a result of the collaboration agreement that the Iberdrola Spain Foundation has with the General Directorate of Infrastructure of the Ministry and which consists of the partial afforestation of the shooting and manoeuvring fields of the Spanish army (see section 4.3).

Onshore Wind

Actions

- Environmental restoration and landscaping to correct impacts on topography, vegetation and habitat loss for Pimelia Canariensis. Four hectares of thermo-Mediterranean and pre-steppe brush habitat were created and 2.26ha of areas affected by the construction of the Chimiche II wind farm and electricity evacuation system were restored. In total 4,430 specimens of Euphorbiaceas, Ceropegia, Kleinia, and Plocama were planted.

Objectives

- Restoration of the thermo-Mediterranean and pre-steppe brush habitat[11]
- Reforestation

11. Habitat of Community Interest 5330

Nuclear Power Generation

Actions

- Planting of 15ha with approximately 3,000 trees of the following species: *Quercus rotundifolia, Olea europaea var. Sylvestris, Quercus suber*, for the recovery of a wooded grazing terrain of holm oaks as compensation for the construction of the Individual Interim Storage Facility (ATI). Over the coming years it will be monitored and restocked with plants if necessary

Objectives

- Reforestation for the creation of wooded pasture habitat

Thermal Power Generation

Actions

- Revegetation at the non-hazardous dump of the Lada coal-powered plant

Objectives

- Recovery of terrain

Revegetación depósito de residuos no peligrosos

Hydroelectric Power Generation

Actions

- 10 demolitions of huts, lines, etc and reinstatement as natural terrain

Objectives

- Recovery of natural terrain

Images before

Generation plant burner Agavanzal

After

Terrain without burner in Cernadilla

United Kingdom

In the 2018-2019 period alone, ScottishPower Renewables have planted over 400,000 trees across windfarm sites and this will increase to over 1 million trees as well as thousands of hedge plants, shrubs and wetland plants.

Onshore wind

- ScottishPower Renewables are committed to over 200 ecological activities on onshore windfarms, the majority of which concern the restoration of degraded habitat, creation of native woodlands and species monitoring. During the 2018-19 period, ScottishPower Renewables have Habitat Management Plans (HMPs) in place at 24 sites, covering an area of approximately 9,035 ha. The HMPs define the objectives of the conservation management and set out the management and monitoring measures required to achieve the objectives. The HMPs run for approximately 25 years (commissioning to end of decommissioning).

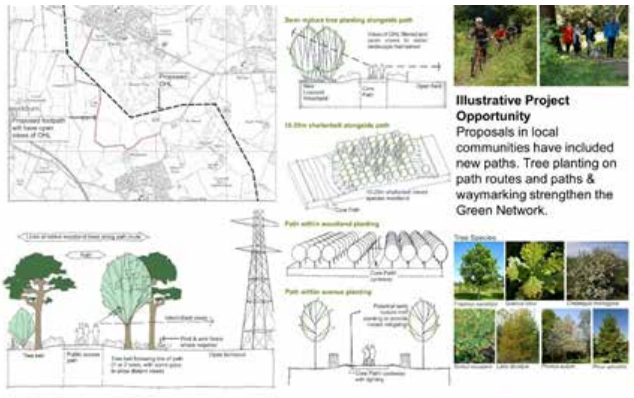
Actions	Objectives
• ScottishPower Renewables have committed to restoring and improving 8370 ha of degraded blanket bog habitats using methods ranging from grazing management and ditch blocking, to intensive interventions on previously afforested ground using low ground pressure excavators to create a flattened surface which helps the water table to recover, and enables growth of typical bog plants such as Sphagnum mosses. In 2018-2019 peatland restoration works were performed on 1100 ha of damaged habitat across 6 sites.	• Blanket bog restoration • Species benefitted include black grouse, wading birds such as breeding snipe and curlew, and raptors such as foraging hen harrier and golden eagle.
• In the 2018-2019 period alone, ScottishPower Renewables have planted over 400,000 trees across windfarm sites: establishing new woodland areas and undertaking maintenance work on previously created areas. ScottishPower Renewables manage approximately 580ha of native woodland across 16 sites.	• Native woodland creation • Species benefitted include red squirrel and black grouse.
• The addition of Kilgallioch Windfarm, Scotland to the operational portfolio has resulted in the establishment of over 1000ha commercial plantation and native broadleaf woodland. Work began in 2019 and will take approximately 5 years to establish the project. The area is enclosed by a 19.5km deer fence and over 1,200,000 trees will be planted within the area.	• Woodland restoration • Species benefitted include red squirrel

Area of blanket bog habitat immediately following restoration works and after 5 years

Black grouse (*Lyrurus tetrix*) @ RSPB Escocia

Networks

- ScottishPower Energy Networks take an environmentally led approach to the siting and routing of overhead lines and substations. This seeks to balance technical and economic considerations with an environmental framework, ensuring that the impact of such development is minimised and sites of interest, importance or special quality are avoided. The Land & Planning Teams work to the highest standards of international, national and regional guidance and reflect this guidance in Energy Networks' bespoke advice like preparation of documents such as "*The Approach to Routeing and Siting*" and the "Land Code of Conduct". These publicly available documents set out Energy Networks' approach to protection of the environment by avoiding adverse impacts upon environmental resources and identifying, and delivering, opportunities to improve biodiversity.

Actions	Objectives
• Energy Networks have successfully delivered biodiversity initiatives in Scotland, Wales and England including heathland restoration at Land Clocaenog Forest, North Wales in collaboration with Natural Resources Wales, seeding over 6500m2 heathland and planting extensive species rich native hedgerow (3,600 trees/shrubs) at Curling Farm and Scottish Borders to offset impacts associated with overhead line refurbishment	• Heathland restoration
• The Beauly Denny project, one of the largest Over Head Lines ever built in the UK provided 2431 trees, 6687 hedge plants, 11388 shrubs and wetland plants, 4.1km of drystone wall lying within over 20 Ha of habitat improvement. This approach which is unique in the UK networks industry ensures that Energy Networks are investing in a green future and supporting the enhancement of biodiversity and wider environment in Scotland	• Habitat improvements and enhanced biodiversity through mitigation  Mitigation Planting and Path Corridors
• Falkirk Bog Restoration Partnership is a unique project concerned with restoration of degraded peatland and wetland habitat in the central belt of Scotland. Working with local stakeholders together with Buglife, the UK's national invertebrate charity, Energy Networks have invested over £850,000 to deliver an ambitious programme of peat bog improvements across 9 sites (250 hectares). This area provides a carbon sink equivalent to the approximate capacity of 1.2 billion kg together with improved mosaic of habitats enabling species to thrive. Since work began, over 610 species have been recorded at the sites	• Peatland restoration in central Scotland  Bog Restoration

United States

Onshore wind

- Avangrid Renewables applies measures to offset impacts to wildlife and habitat associated with construction and operation of its facilities through mitigation. Mitigation activities may include establishment of conservation easements and restoration efforts. Monitoring of mitigation sites may occur long-term and may be deeded to or managed by a third-party.

Actions	Objectives
• Monitored Habitat Mitigation Areas (HMA) in Oregon as mitigation for impacts to habitat associated with the Klondike III and IIIa, Leaning Juniper IIa and IIb, Pebble Springs, Hay Canyon, and Montague wind projects. The HMAs are 44 acres, 92 acres, 80 acres, 25 acres, and 18 acres for each wind project, respectively. HMAs were established subsequent to project construction in native grassland or shrub-steppe habitat and are preserved through activities including invasive species management, grazing exclusion, and annual monitoring to document restoration progress	• Grassland, shrub-steppe
• Preserved 161 acres for habitat conservation associated with the Juniper Canyon Wind Project	• Grassland, woodlands (riparian and upland) and shrub-steppe
• Conserved more than 144 acres of land comparable to the remote, high elevation of concentrated beech stands impacted by the Deerfield Wind Project and provided funding to the Vermont Fish and Wildlife to conduct a black bear study to evaluate potential displacement	• Black bear habitat
• Monitored 1.28 acre emergent wetland mitigation site associated with the Hardscrabble Wind Project in 2018. The site consists of emergent and open water habitat	• Wetland
• Preserved 600 acres of riparian, chaparral, scrub, grassland, and woodland habitat for mitigation to offset impacts associated with the Tule Wind Project, includes active enhancement of a drainage (removing invasive tamarisk) and revegetation of Jacumba milkvetch	• Grassland, woodlands (riparian and upland) and shrub-steppe

Networks

- "For each project, a routing or siting analysis is done to determine areas of high biodiversity or protected areas. These areas are avoided to the extent possible. If these areas can't be avoided, we seek to minimize the impact through design, scheduling, or added protection measures during construction. For example, modification of the design for a smaller footprint or placement of transmission structures to span sensitive areas, or scheduling activities to avoid spawning or nesting periods. Then, a variety of protection measures may be utilized during construction such as use of smaller track-based vehicles or non-ground penetrating equipment or swamp/construction mats. For unavoidable impacts, compensation actions have occurred. In regards to wetland and habitat restoration, the following projects were performed:

Actions	Objectives
• The Columbia County Transmission project resulted in the conversion of 0.26 acres of forested wetland to scrub-brush and the permanent loss of 0.096 acres of wetland for the substation. Mitigation included: 0.8 acres of forested wetland enhancement, 0.16 acres of enhancement to a 160 linear foot channel of stream, enhancement to 1.23 acres of upland area and the permanent preservation of the 2.19 acres' mitigation area. 215 native trees and shrubs were planted.	• Wetland restoration and offset habitat
• The Rochester Area Reliability Project filled 0.78 acres of wetland and converted several acres of forested wetland to shrub brush wetland. To off-set these impacts, RG&E built a 12.6 acre wetland on Ballantyne Road, replanted a 17 acre wetland, and added 34 acres of wetland into a conservation easement. 440 trees planted at Ballantyne Road and more than 3000 trees and bushes planted at the 17 acre wetland. Replanted Big Shell Bark Hickory Tree at a 5:1 ratio. RG&E has also agreed to plant selective trees at the Conservation Easement area.	• Creation of wetland offset habitat • Replanted a threatened tree species
• RG&E provided a comprehensive mitigation plan for unavoidable wetland impacts associated with 3 gas pipeline projects. An existing wetland on East River Road property was expanded by 2.4 acres and an additional 2.0 acres of wetland enhancement completed. 969 native trees were planted.	• Creation of wetland offset habitat

East River Road

• Compensation mitigation in form of In-lieu fee payment was performed for Casco Bay Submerged Cable and Spring St. Substation projects[12]	• Habitat loss compensation

12 In-lieu fee (ILF) program means a program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements. Similar to a mitigation bank, an in-lieu fee program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu program sponsor.

Brazil

- Brazil is home to the greatest biodiversity on the planet. This abundant variety of life - which provides into more than 20% of the Earth's total number of species - elevates Brazil to the position of leading nation among the 17 megadiverse countries (MMA, 2020).
- Despite this wealth, it is a consensus among the scientific community that the greatest threat to our biodiversity is caused by the loss of habitats, especially the forest habitats of different Brazilian biomes.
- Aware of this problem and committed to the conservation of biodiversity, in accordance with their environmental programmes, the companies of the Neoenergia Group have worked on several projects to restore degraded areas, planting native forest species, creating forest nurseries and other environmental compensations.
- The following is a summary of some of our projects during the years 2018 and 2019.

Hydroelectric Power Generation

Plants	Actions	Objectives
Corumbá III	• The company is working to reforest its permanent conservation areas with a total of approximately 2,860,000 seedlings of native species of the savanna. • By the end of 2019, more than 1.5 million seedlings of native species had been planted.	• Improvement of the habitats adjacent to our facilities; increase of the soil absorption capacity, decrease of erosion process formation and sediment transport to the reservoir.
Baguari	• Aiming at the regeneration of the areas owned by the company, the Baguari hydroelectric power plant carried out a complete survey of its Permanent Conservation Areas and implemented forest enrichment projects over an area of approximately 177 hectares during 2018 and 2019.	• Improvement of the habitats adjacent to our facilities; increase of the soil absorption capacity, decrease of erosion process formation and sediment transport to the reservoir.
Teles Pires	• The Permanent Conservation Areas Recomposition and Implementation Programme is responsible for ensuring that new forests can be established in the reforestation areas, with protection from cattle and other intrusions and illegal deforestation. • By the end of 2019, approximately 775,000 seedlings of native species had been planted • To support the Forest Recomposition programme, the Teles Pires hydroelectric power plant implemented in 2013 a native seedling nursery, which continues to function as a local base for mapping forest matrices, collecting and germinating seeds, cultivating and rustifying the seedlings for use in the areas targeted for restoration.	• Restore approximately 4000 hectares around the development, thus improving the quality of the adjacent habitats. • Improvement of water quality in the springs, aiming at forest restoration, restoration of the springs and improvement of environmental quality.  Teles Pires native nursery seedlings

Plants	Actions	Objectives
Itapebi	• The Itapebi hydroelectric power plant is reforesting the islands formed on its reservoir, thus contributing to the improvement of the region's environmental quality. • The company's goal is to plant approximately 47,000 seedlings, of which 12,500 have already been planted on the islands.	• The objective of the programme is to define the main actions to be adopted aiming at the establishment of natural vegetation on the islands of the reservoir, the restoration of biological activity in the soil, contributing to the improvement of the environmental quality of the islands.
Baixo Iguaçu	• The Baixo Iguaçu hydroelectric power plant was inaugurated in 2019. It is planned to restore approximately 1700 hectares of forest by replanting. This will allow connectivity between the conservation areas around the reservoir and the protected areas of the Iguaçu National Park. This will improve the environmental quality of the entire region and provide a linkage of habitats, a key factor in improving the environmental quality of the region. • In the environmental licensing process, the company will transfer a total of 6.4 million reais to the National System of Conservation Units (SNUC), an amount that helps formally protected areas to maintain the conservation and environmental quality of the regions where they are located. • Investment in reforestation will start in 2020.	• To create an ecological corridor between the areas surrounding the development and the Iguaçu National Park, and support the National System of Conservation Units.  Teles pires Reforestation – before and after
Dardanelos	• During the years 2018 and 2019, the Dardanelos Hydroelectric Power Plant carried out monitoring of its preservation areas to ensure the maintenance of the quality of the environment around its facilities.	• This ensures the environmental conservation of the areas already restored, as well as the forest areas established around the project.

Networks

Actions	Objectives
• Distribution companies, during the environmental licensing process, restore the areas affected by the installation of our distribution lines and substations. During 2018 and 2019 approximately 240,000 seedlings of native species were planted in the regions where we operate, thus contributing to the improvement of environmental quality in our concession areas.	• Restoring degraded areas improves environmental quality in our concession areas.

Redes

Onshore wind

Actions

- In the development of its environmental programmes, the Brazilian Wind Power team planted approximately 880 seedlings of native and endemic species in the region, promoting the restoration of approximately 8000 square metres in the Caetité Complex, in the state of Bahia.
- New projects aimed at translocating and densening caatinga (dry forest) species and restoring areas impacted by the company's activities. More than 9000 specimens of caatinga flora were rescued and relocated.

Objectives

- Protection of flora and fauna

Caatinga Wind Farms' Flora Rescue Programme

Mexico

- A number of reforestation plans are in place for thermal power plants that aim to compensate the environmental impact and thereby legally comply with the requirements of the Mexican environmental authority.

Gas thermal generation

Actions

- Reforestation plan for the Topolobampo III Power Plant over an area of 35.1ha where over 21,900 native local plants have been relocated and replanted. A survival rate of 88.5% was achieved.
- Reforestation plan for the Topolobampo II Power Plant over an area of 38.12ha where over 32,500 native local plants have been relocated and replanted.
- Reforestation plan for the Baja California III Power Plant over an area of 35ha where 14,840 native local plants have been relocated and replanted.
- Reforestation Altamira V Power Plant. Reforested area 3ha

Objectives

- Recovery of local flora and habitat compensation.

Reforestation work at the Topolobampo II and III Power Plants, Sinaloa, Mexico

Reforestation area of the Baja California III Power Plant, Mexico

- Restoration Monterrey and Ramos Cogeneration plants. 31 specimens planted

- Restoration of terrain affected by works

Onshore Wind

Actions

- 83.1ha reforestation plan in the Area Defined Voluntarily for Conservation (ADVC) "Predio la llorona" located in Colonia Cuauhtémoc, in the municipality of Matías Romero Avendaño, Oaxaca, as a compensatory measure for the construction of the Venta III wind farm project and its evacuation line. The plan aims to regain the forest cover of fragmented areas by creating biological corridors for fauna as well as contributing to the recovery and conservation of habitat. The plan includes the sowing of seeds in nurseries, replanting, and maintenance and protection of the area for the 5 years following planting. During this time, 25ha have been reforested with forest species of Ceiba (*Ceiba pentandra*), Cordia (*Cordia spp.*), Mahogany (*Swietenia macrophylla*), Mexican Fern Tree (*Schizolobium parahyba*), Roseodendron (*Tabebuia donnel-smithii*), Pink Poui (*Tabebuia rosea*) and Golden Trumpet Tree (*Tabebuia chrysantha*).

Objectives

- Recovery of forest cover in areas fragmented by agricultural activity

4.1.2 Direct fauna protection actions

Iberdrola works to minimise the impacts of its facilities on fauna and undertakes actions to encourage its protection and conservation. Special attention has been paid to the impact of our networks on fauna, particularly bird life, and numerous actions have been undertaken in this area, from pylon adaptations to the application of new bird protection techniques. Work also continues to be done on detection measures, and halting our wind turbines to allow for the passage of birds and chiropters.

During these two years, we have worked on more than 120 activities to protect animal life and have rescued and relocated almost 5,800 individuals as a preventive measure when undertaking building work.

Spain

"In the last two years more than 24,000 Onshore wind have been adapted to minimise the risk to fauna from electrocution by our grids"

"The prevention measures undertaken in Chimiche II Wind Farm allowed saving 38 individuals of the endemic species *Pimelia canariensis*"

Networks

Actions	Objective
• Corrective measures and adaptation of pylons to prevent electrocutions on electricity cables. In 2018 the ALETEO Project (Preparation of Electricity Cables to Attempt to Avoid Electrocutions) was instigated with the main aim of modifying pylons that presented a danger to bird life in bird protection areas designated by the Regional Governments according to Royal Decree 1432/2008. The company has identified over 240,000 pylons in protection areas in the nine autonomous communities in which it operates. This represents a third of the installed pylons, and it will invest around €200m between 2018 and 2025 to modify and correct them. The improvements to be made to the overhead power lines will consist of covering the different stages and connections on the supports, increasing the safety distance (changing the insulators to lengthen the chain or changing them for long rod types), replacing the cross-arms with others specifically designed to protect birds and installing anti-nesting devices, among other measures • Since the beginning of this project, over 24,000 pylons have been modified and around €30m have been invested. In addition, more than 2,700 maintenance and renewal tasks on overhead cables have been carried out to reduce fire risk, including the installation of elements for bird protection and the renewal of supports and insulators to reduce the risk of injury to fauna from lines and substations	• Birdlife protection

Aleteo

• Iberdrola, together with Madrid City Council and the Madrid Region, are rolling out the "Plan Madrid" which includes the consolidation of 16 substations and the removal of 125 kilometres of high voltage overhead cables. Thanks to this project 355,000 square metres of space will have been released and earmarked for the creation of new garden areas, social and sports facilities, homes and offices. The overall progress of the Agreement is 99.87 % as of 2019. It is virtually complete.	• Reducing the risk of injury to birds.

Onshore Wind

Actions	Objectives

• Protection of the *Pimelia canariensis*, a beetle in danger of extinction[13]. Individuals of *Pimelia canariensis* were discovered in the preliminary preventive studies for the construction of the evacuation substation for the Chimiche II Wind Farm , causing a number of actions to be put in place for its protection:
  ◦ Construction of a 1,400 m2 reserve to house the individuals of Pimelia
  ◦ Rescue of 38 individuals for release into the reserve
  ◦ Formulation of an action protocol in the event of detection of the Pimelia canariensis beetle during works
  ◦ Best practices workshop to train and raise awareness among the workforce.
• The measures for protection of the Pimelia were undertaken in conjunction with the REE (Spanish National Grid)
	• Protection of the *Pimelia canariensis*
	 
	Pimelia canariensis

• Sowing of 5ha of cereal to improve the population of the bird of prey Bonelli's eagle on the "Llano Odrea y Sangüijuelas" publicly accessible land belonging to the Castile-La Mancha region, in the municipality of Ayna. These actions are undertaken by way of compensatory measures for the Atalaya de La Solana Wind Farm, this being the 14th year they have been applied.	• Recovery of the Bonelli's eagle population  Bonelli›s eagle (*Aquila fasciata*) © Peter Harris

Combined cycle power plants

Actions	Objectives
• Maintaining control in larval monitoring of mussels in the circulating water tanks of the Escombreras Plant to minimise sodium hypochlorite release to sea water. Improvement in the dispensing process, keeping residual chlorine levels in cooling water at 0.3 ppm	• Reduction of invasive species
• Collaboration between the Escombreras Plant and the "El Valle" Woodland Fauna Bird Recovery Centre for species like the Bittern and the lesser kestrel, returning them to their natural habitat once they have been restored to physical and mental health	• Birdlife protection

13 *Pimelia canariensis* is a beetle labelled as "at risk of extinction" in the Canary Islands Catalogue of Protected Species (Law 4/2010 of 4 June).

Hydroelectric Power Generation

Actions	Objectives
• Annual release of over 5,000 eels (*Anguilla anguilla*) into the rivers Júcar, Cabriel and Mijares as part of the Eel Restocking Plan for the rivers Jucar, Cabriel and Mijares in the Valencian Region, these being years four and five of 10. This species is classified as critically endangered in the IUCN Red List.	• Recovery of the eel population (*Anguilla anguilla*)
• Maintaining of the ecological flow established for the conservation of stretches of river downstream of dams	• Fish protection
• Control of the level of the Cortes – La Muela dam during breeding to facilitate the nesting of the Western Marsh Harrier	• Protection of the Western Marsh Harrier
• Ensure that the water that has passed through the turbines contains the minimum essential concentrations of dissolved oxygen required for aquatic life	• Fish protection
• Protection of fish during reservoir drainage for maintenance: slow reductions in level, environmental surveillance, population diversion, elimination of foreign invasive species and electric fishing in the final stage for return to the river	• Fish protection
• Eleven activities to prevent animals from falling into the canals, encouraging safe passage. Replacement of an escape platform for animals in the San Miguel loading chamber, fencing canals in the Mediterranean and northern basins, etc.	• Fauna protection

Eel restocking. Jucar River

Fish rescue during El Molinar reservoir draining

United Kingdom

Development: During the planning process, surveys are carried out to determine what wildlife is present on site, and whether the project could have potential effects on habitats and species of local, national and/or international importance. Where appropriate, additional protected species surveys are undertaken for amphibians, birds and mammals. Bird surveys are generally carried out year round for 2 years in advance of the project being submitted for planning. Chiropter activity surveys are carried out to establish the presence of chiropters and assess activity levels at the proposed site, while surveys to identify the presence of protect mammals such as otter and badger are also carried out at this stage. The survey findings identify whether there are any ecological constraints to project, and lead to the development of mitigation measures, if required.

Construction: Ecological Method Statements are used where preparation and construction works could potentially affect sensitive species and/or habitats. The timing of a project is adjusted to avoid spawning periods or nesting times. The duration and sequencing of works are also controlled. The scope and detail of these statements are informed by expert ecological advisors and environmental regulatory bodies. We continue to conduct surveys during construction to ensure that there are no negative impacts upon habitats and species. To facilitate this each site will have an Ecological Management Plan which may include a Breeding Bird Protection Plan and Protected Species Plan, which details the mitigation measures to be put in place in the event that particular species are discovered on-site during construction.

Monitoring activities are described in section 4.2.

Networks

Actions	Objectives

• The Dundeught Hill partnership project as part of 132kV heavy-duty wood pole line through Dalry, Dumfries and Galloway from the Blackcraig Windfarm seeks to:
  • reduce bird collisions by installing neutral coloured deflectors positioned once every 5m along the cable; and
  • allow red squirrel movement of a wider area by increasing connectivity between suitable belts of habitat and provide shelter from predators by creating a red squirrel corridor over water (c70m)
	• Protection of birds and increasing connectivity for red squirrel

• Energy Networks implemented a Badger Species Protection Plan as well as implementation of regulatory licences concerning species protection like otters and hen harriers	• Protection of badger, otters and hen harriers

Red Squirrel @rspb-images.com

Actions

- Energy Networks created a new home for rare birds, returning from their winter migration in Africa, at undisclosed location in Scottish Borders. It is thought that there are no more than 300 breeding pairs of ospreys in the UK due to persecution – the majority are found in Scotland. This replacement platform was installed through collaboration with the Lothian & Borders Raptor Study Group, Tweed Valley Osprey Project and landowner to ensure the birds continue to breed. The tower also provides a safe site for volunteers participating in a locally based monitoring programme

Objectives

- Rare bird conservation

Volunteers participating in a locally based monitoring programme

United States

Networks

- During the initial planning of a Project, a variety of surveys are conducted to determine whether the project could have a potential effect on habitats and species of local, national and/or international importance. Where appropriate, additional protected species surveys are undertaken for aquatic species, amphibians, birds and mammals. Sensitive habitat areas are avoided entirely to the extent possible. If avoidance of a specific area is not possible, the timing of construction activities is adjusted to limit any impact. Additional protective measures may be installed and monitoring by specialists performed during construction

Actions

- Company-wide procedure to minimize impacts upon nesting and fledging osprey in its transmission/distribution corridors.
  - Special care is taken not to work during reproduction and breeding periods.
  - Installation of bird diverters on the crossarms of supports in the shape of owls or turkeys to prevent nesting.
  - Relocation of nests to safer prepared platforms
  - Partnering with local and state organizations on recovery efforts.
- NYSEG developed steel excluders that could easily slide over the davit arm to prevent harm to the nesting birds in the Line 871/872's newly installed steel transmission structures. The steel nest excluders will weather over time to match the aesthetic of the steel pole – a deliberate effort to protect the scenic viewshed of the Adirondack Park where the structures are located.

Objectives

- Ospreys (*Pandion hallaetus*)

Built platforms for the osprey to nest in

Actions	Objectives
• The chiropters *Myotis septentrionalis* and *Myotis sodalis* are endangered or threatened in the US. NYSEG and RG&E have installed chiropter houses and roosting structures in appropriate areas along the Rights of Ways and wetland compensation areas to provide habitat.	• Protection of *Myotis septentrionalis* y *Myotis sodalis*
• For the protection of the eastern box turtle (Terrapene carolina carolina), on-site monitors were enlisted and additional contractor training completed for UI projects such as the Milvon – Devon Transmission Line and Hawthorne Substation., (Terrapene carolina carolina).	• Eastern Box Turtle  Eastern Box Turtle

Onshore wind

- A cornerstone of Avangrid Renewables' approach to the development, construction, and operation of wholly-owned renewable energy facilities is the use of practices that avoid, minimize, or mitigate risk to wildlife and habitat.

Actions	Objectives
• Blue Creek Wind Farm developed a Habitat Conservation Plan for the federally endangered *Myotis sodalis* and federally threatened *Myotis septentrionalis*. The Habitat Conservation Plan was submitted to the US Fish and Wildlife Service as part of an Incidental Take Permit application under Section 10 of the Endangered Species Act.	• Protection of *Myotis septentrionalis* and *Myotis sodalis*
• Manzana Wind Power Project developed a Conservation Plan for the federally endangered California condor. The Conservation Plan will be submitted to the US Fish and Wildlife Service as part of an Incidental Take Permit application under Section 10 of the Endangered Species Act.	• California condor  California Condor

Actions	Objectives
• Manzana Wind Project has implemented a geofence technology to manage risk to California condor. A majority of condors in the southern California population have been equipped with radio frequency and global positioning system technologies to track their movements. When a condor wearing a transmitter crosses the geofence boundary surrounding Manzana, a third-party providing remote monitoring of condor movement notifies Avangrid Renewables' National Control Center. The National Control Center will curtail a portion of turbines in proximity to the condor to minimize potential risk.	• California condor  California condor @ Richard Crossley
• Avangrid Renewables is developing Eagle Conservation Plans for 7 wind projects to manage eagle risk at these operating facilities.	• Bald and golden eagle  Golden eagle
• Avangrid Renewables completed a fleet-wide assessment and retrofit effort of overhead collector lines (34.5 kilovolt) and substations to conform with the Avian Power Line Interaction Committee Suggested Practices for Avian Protection on Power Lines (2006). This effort covered 64 operating facilities and spanned years 2015 to 2019. The goal of the Project was to reduce potential impacts to avian species and other wildlfie, improve safety, and reliability of Operations, and minimize regulatory risk. Retrofitting based on Project assessment results occurred at 33 existing plants. Retrofitting included installation of covers and barriers and inspections for maintenance issues including loose hardware, failed or missing equipment, or gaps in existing covers to minimize risk of wildlife electrocution and resulting plant outages.	• All wildlife

Actions	Objectives
• In 2019, Avangrid Renewables prepared an Avian Protection Plan (APP) to minimize electrocution risks to birds and other wildlife, based on the Avian Power Line Interaction Committee's (APLIC) Suggested Practices (APLIC 2006). The APP incorporates a diversity of existing practices designed to reduce potential impacts to birds and other wildlife from operation of the Company's overhead collector power lines and substations at wind and solar plants. Avangrid Renewables recognizes wildlife use of overhead collector line infrastructure and substations for perching, foraging, nesting, and other activities, especially by raptors and other large birds, and balances this use with practices to protect birds and other wildlife and to enhance system reliability and operations.	• All wildlife, with focus on birds  Example of a riser pole with coverings and barriers to minimize risk of wildlife electrocution and resulting plant outage.
• Maintained established partnerships with 16 wildlife rehabilitation organizations across the U.S. Rehabilitator partners may respond to operational plants to recover, transport, and provide care for injured wildlife discovered on-site.	• All wildlife, with focus on birds and bats

Brazil

• The Neoenergia Group is adopting control measures to protect local fauna, avoiding accidents to our structures and the death or injury of the animals that surround our facilities.

• The following are some of the measures taken by our companies:

Hydroelectric Power Generation

Actions	Objectives
• Fauna Restoration and Aversion Programmes during construction work. • Rescuing ichthyofauna in the turbines during the maintenance work on the generating units. • Installation of anti-cardume mechanisms in the water outlet of the generating units, avoiding the entrance of fish during maintenance.	• Avoiding net losses of biodiversity and improving the environmental quality of hydroelectric power projects.

Onshore Wind

Actions

- Fauna Rescue and Aversion Programmes, focusing and mitigating the effects of plant suppression on the region's fauna community, undermining the ecological relations between species, have already rescued or averted approximately 5000 specimens.
- Installation and operation of a Wild Animal Triage Centre (CETAS), making it possible to provide outpatient care for wild fauna during the vegetal suppression work for the installation of the project.

Objectives

- Minimise the impact on fauna during the implementation and operation of wind farms.

Rescue of fauna in the Chamariz Wind Power Complex

Networks

Actions

- Aversion and rescue of fauna during the installation of new structures.
- Installation of signalling mechanisms for the power lines to avoid accidents with birds.
- Installation of protected distribution networks in places with high probability of accidents with fauna.
- Installation of physical barriers to prevent accidents with the fauna in substations, e.g. protection of insulators, bushings and conductors, installation of sound repellents and barriers to prevent ascension of animals.

Objectives

- Minimise the number of wild animal occurrences in network structures.
- Avoid biodiversity losses in company concession areas caused by power distribution activities.

Mexico

Combined Cycles Power Plants

Actions	Objectives
• Programme of flushing out, rescuing and relocating wild fauna prior to and during project works on the power plants. Wild fauna rescue activities are carried out, paying particular attention to those with any kind of protected status, to avoid harm to individual fauna present by relocating them so that they can continue their normal activities.	• Rescue and relocation of local vegetation
• In total over 600 individuals were rescued and relocated, including species categorised as endangered and protected under Mexican regulations. The main individuals of wild fauna flushed out on the Mexican combined cycle's projects are birds, reptiles and small mammals	

Freeing of captured reptiles

Setting of traps for mammals (Tomahawk, Sherman, etc.)

Onshore Wind

Actions	Objectives
• At Venta III and Pier II Wind Fams, Iberdrola introduced a protocol for halting wind turbines in the event of a collision.	• Bird and Chiropter protection

Solar

Actions	Objectives
• Weekly rounds for the rescue and relocation of wild fauna at facilities during the period of operation in compliance with the commitments established in the environmental impact study for the Hermosillo Photovoltaic Plant. The aim is to safeguard the well-being of the staff working at the plant and that of the wild fauna, placing special emphasis on relocating those species that could constitute a danger. During the first quarter, 136 individuals were relocated including specimens of the Mexican Blond Tarantula (*Aphonopelma chalcodes*) and the Mexican Lyre Snake (*Trimorphodon tau*).	• Wild fauna protection
• Rescue and relocation of wild fauna at the Santiago Photovoltaic Plant during the period of operation to comply with the Environmental Impact Statement. During the first quarter 30 specimens were relocated including Black-tailed Rattlesnake (*Crotalus molossus*), Rock Rattlesnake (*Crotalus lepidus*), and Mexican Bull Snake (*Pituophis deppei*).	• Wild fauna protection

Mexican Blonde Tarantula (*Aphonopelma chalcodes*)

Mexican Lyre Snake (*Trimorphodon tau*)

4.1.3 Direct protection actions and vegetation management

Iberdrola has a vegetation management and flora protection plan with the aim of reducing fire risk and applying best practices in pruning and the control of invasive species. More than 40 vegetation management and flora protection actions have been carried out.

Spain

"Over €40m spent on protection and vegetation management over the two years"

Networks

Actions	Objectives
• Implementation of network improvements for the protection of vegetation. During this period 64km2 of vegetation cover have been managed in order to reduce the potential fire risk and widen the safety corridors by means of felling, pruning and clearance.	• Protection from forest fires
• FLASH Project. This project consists of a detailed analysis of all the electricity lines using a helicopter fitted with the latest technology including a LIDAR (Laser Imaging Detection and Ranging) camera. This device sweeps the terrain using a laser, which together with the pictures taken during the flight makes it possible to obtain precise information about the facilities (data and geo-referenced images), the distances to any nearby object and the terrain and vegetation present in the area. During 2019, 29,400km were surveyed at a cost of €5.3m. • As well as carrying out regulatory inspections of the lines, we can also obtain valuable information about existing vegetation in the vicinity of the lines, which enables us to better manage the vegetation and specifically reduce the fire risk.	• Protection of vegetation and reduction of fire risk

Hydroelectric Power Generation

Actions	Objectives
• Firebreak maintenance works to avoid the spread of fires in areas close to natural spaces at Iberdrola facilities.	• Fire protection for vegetation

United Kingdom

Onshore

Actions	Objectives
• In 2018 and 2019 a control programme was implemented to remove Japanese Knotweed and Giant Hogweed at Black Law windfarm Extension. This is part of a 5-year programme to successfully remove all of the invasive plant.	• Invasive species control
• A commitment was made to restore 2.4ha of the internationally rare Dorset Heath at Carland Cross Windfarm. Trials were carried out to evaluate the best methods of preparing the ground and re-establishing the required vegetation communities before rolling the treatment out across the entire area. In 2019 a programme was initiated to remove ragwort (an injurious weed) from the restoration area. This involved hand pulling the weeds and spraying the affected areas, ensuring that only herbicides which do not negatively impact non-target species were used. Monitoring carried out in 2019 suggests that the management works have been successful, with typical Dorset Heath species, including *Erica ciliaris*, becoming well established.	

Japanese knotweed and Giant Hogweed at Black Law Windfarm Extension

Restored area of Dorset Heath (to right of fence)

Networks

Actions	Objectives
• Energy Networks promotes the creation of green networks developed in partnership with local communities and stakeholders to promote the development of habitat and green infrastructure enabling increased biodiversity and greater access to the outdoors for the communities we serve. Such development can include corridors of landscape and tree planting, local cycle networks, urban greenspace and wider countryside management or landscape design	• Creation of green networks bringing enhanced biodiversity, more urban greenspace and active travel routes

United States

Networks

Actions	Objectives
• Development of an "Integrated management of vegetation" program with the best practices available via the signalling of protected areas, the protection of ponds and streams, adequate planning of works to prevent impact on vernal pools and the use of lighter vehicles in forested areas	• Minimise impact on flora
• The companies also have programs to prevent the spread of invasive species. In addition, baseline invasive species surveys are conducted for new transmission projects and post construction monitoring is performed to monitor and control the spread of invasive species	• Removal of invasive species

Solar

Actions	Objectives
• Annual vegetation management and monitoring of noxious weeds occurs at Avangrid Renewables' operating solar plants. Activities include mowing and general monitoring of invasive species	• Vegetation management

Brazil

Hydroelectric Power Generation

Actions

- Germplasm Rescue Programmes with the establishment of a native seedling nursery for reforestation in Teles Pires and the promotion of seedlings of native species of the regional flora for reforestation in Baixo Iguaçu.
- Relocation actions Isolation of permanent conservation areas and implementation and monitoring of epiphytes.
- – Isolation of permanent conservation areas and implementation of firebreaks for the protection of forest areas against fires.
- Management of macrophyte proliferation in reservoirs.

Objectives

- Avoid loss of seedlings and seeds with relocation potential and minimise impacts on vegetation
- Protect forest areas from fire and control the proliferation of aquatic investments in reservoirs

Onshore Wind

Actions

- Programme for the rescue of caatinga flora and relocation of species of high ecological value.
- Studies of alternative lines, parks and service roads to minimise interference in areas of native vegetation.

Objectives

- Minimise the impact of the installation of new structures in the caatinga

Rescue Caatinga

Networks

Actions

- Survey of pylons to minimise the impacts on vegetation.
- Studies of alternative routes for power lines with the objective of minimising interference with forest remains in medium and advanced stages of regeneration.
- Vegetation management actions and selective pruning on distribution lines to avoid contact of trees with lines and pylons.
- Dissemination of good practices for urban aforestation management via the vegetation management guides of our distribution companies.

Objectives

- Minimising contact between lines and pylons and the vegetation; avoiding accidents with trees.
- Spreading the best urban vegetation management practices in the Group's areas of operation.

Mexico

Combined Cycles Power Plant

Actions	Objectives
• Programme for the rescue, relocation and conservation of wild flora in compensation for the construction of the Topolobampo II and III, El Carmen and Escobedo combined cycle plant projects. In total over 44,000 reforestation plantings were done and more than 13,600 specimens of flora were relocated in a total surface area of 145.88ha. The plan includes the monitoring and relocation of plants over a 5-year period.	• Rescue and relocation of wild flora.  Example of relocated *Stenocereus*

Solar

Actions	Objectives
• Carrying out of rescue and relocation tasks for 11,273 specimens of flora and reforestation activities in 14 ha of neighbouring terrain to compensate for the construction of the Hermosillo Photovoltaic Plant. The main species relocated and reforested were Mesquite (*Prosopis velutina*), Brea (*Cercidium praecox*), Ironwood (*Olneya tesota*), Senita Cactus (*Lophocereus schottii*), Counterclockwise Nipple Cactus (*Mammillaria mainae*). The latter was the species most used for the reforestation, since it is catalogued under special protection in the SEMARNAT list. The plan includes monitoring and relocation of plants to cover a survival rate of 80% of the plants rescued over a 5-year period.	• Rescue and relocation of wild flora.
• Rescue and relocation tasks were carried out for 35,207 specimens of flora in neighbouring terrain to compensate for the construction of the Hermosillo Photovoltaic Plant. The main species relocated were Agave salmiana, Ferocactus latispinus, Jatropha dioica, Mammillaria unicanata, Opuntia robusta, Opuntia streptacantha, Yuca decipiens and Stenocactus coptonogonus. The latter was the species most used for the reforestation, since it is catalogued under special protection in the SEMARNAT list. The plan includes monitoring and relocation of plants to cover a survival rate of 80% of the plants rescued over a 5-year period.	• Rescue and relocation of wild flora.  *Ferocactus histrix* (Pr) and *Yucca decipiens*

4.1.4 Actions for the Prevention of indirect impacts on the soil and water

Spain

Networks

Actions	Objectives
• Some years ago the company put into action a plan to construct oil collection tanks at substations and pits/basins for oil spills at transformer centres in buildings (CTE) that do not have them. Currently all new ST/STRs are built or fitted with tanks and CTEs with pits/bunds for oil collection. • During this period, we built 32 new tanks at substations and 149 oil collection pits/trays at transformer centres. • We also implemented more than 1,000 preventive measures, such as replacing PCB-containing transformers in substations and transformer centres. • Plan to construct temporary storage facilities for waste at substations to prevent ground pollution. This has been done for a number of years and practically all the substations have a temporary storage area.	• To prevent pollution in soil and underground water 

Hydroelectric Power generation

Actions	Objectives
• Actions aimed at pollution prevention (23): Construction and sealing of pits, replacement with dry transformers, strengthening of septic tanks, oil separators, substitution of lubricating oils with less polluting substances, maintenance and improvements to waste containment systems, etc.	• Prevention of pollution and its possible impacts on flora and fauna.
• Installation of settling tanks to improve the quality of water exiting the turbines.	• Improvement in quality of water that has passed through turbines and is returned to the river.

Thermal Power Generation

Actions	Objectives
• Numerous actions were carried out at all power plants within the pollution prevention plan. These include the construction of perimeter ditches, sealing of outflows, liquid-proofing of floors and bunds, installation of continuous bleed valves and hydrocarbon detectors, etc.	• Prevention of ground and water pollution.
• Numerous actions were carried out that were aimed at reducing consumption of catchment water for refrigeration, waste reduction and reduction of chemical usage, and reduction of external noise generation, etc.	• To reduce the amount of water collected, waste generated and noise emitted.

United Kingdom

Networks

Actions	Objectives
• The Dundeught Hill partnership project as part of 132kV heavy-duty wood pole line through Dalry, Dumfries and Galloway from the Blackcraig Windfarm seeks to prevent bird collisions, safeguard protected species and reduce the potential impact of sediment pollution and erosion through long term remediation work in collaboration with landowners Forestry Commission Scotland, and Scottish Environmental Protection Agency.	• Mitigation of sediment pollution and erosion

Offshore Wind

Actions	Objectives
• Iberdrola Offshore business operate an Environmental Management System across all the offshore projects specifically developing procedures to manage risks to the marine environment. Stakeholder engagement and communications form an integral part of this co-ordinated approach to environment management such as communications through bulletins and updates on relevant issues such as invasive species or dropped objects into marine environment.	• Pollution prevention

United States

Networks

Actions	Objectives
• A stormwater pollution prevention plan is prepared for all projects which result in greater than 1 acre soil disturbance which lists the erosion and sediment control measures required. Permanent storm detention facilities are routinely installed with new construction activities with impervious surfaces.	• Protection of water quality

Onshore Wind and Solar

Actions	Objectives
• Oil is used in wind turbines to lubricate gear boxes and operate hydraulic systems. When the oil is longer suitable for use, it is commonly recycled. The Blue Creek Wind Farm and the City of Van Wert collaborated on a solution to minimize waste oil disposal. Instead of the city paying for fuel oil and the wind farm paying to recycle oil, we teamed up to provide our used oil to be repurposed as fuel for their heating systems. Both parties benefit as it's cost free to both and the environment benefits from reusing the same oil twice, meeting all state and USEPA[14] requirements for transportation and use.	• Used oils repurposed to heat City of Van Wert buildings
• Storing waste oils is an important responsibility. Our wind farms recently adopted a new waste oil storage system that eliminates spills through improved design and enhanced safety features. Some of the key improvements include a built-in strainer for minimizing oil filter waste, double walled construction, sealed oil level gauge and provisions for venting, options to draw from bottom or top and eliminates need to transport bin	• Waste oil storage efficiency

Brazil

• All parts of the Neoenergia Group, committed to the valuation and protection of natural resources, act to protect indirect impacts on biodiversity, especially contamination of soil, surface and underground water resources, combating the formation of erosive processes and the silting up of rivers, streams and urban drainage systems.

• The following are some of the actions taken by the Neoenergia Group to avoid indirect impacts on biodiversity

- Containment basins and oil and water separator tanks in substations and other areas with potential risk of hazardous product leakage.
- Waterproof installations to house equipment that might leak contaminating products.
- Mitigation kits for hazardous product leaks.

Sistema de drenaje instalado en Parques eólicos

14 Environmental Protection Agency of United States

- Programmes and actions for the recomposition of vegetation cover in the facilities, to avoid the formation of erosive processes and silting up of water courses and the urban drainage system.
- Actions for monitoring and recomposition of the banks of reservoirs.
- Solid Waste Management Programmes that ensure the correct disposal of waste generated by Group companies.
- Specific drainage design for each water intervention.
- Actions to monitor erosive processes and maintain drainage systems in Wind Farms in order to mitigate impacts on bodies of water.

Itapebi Hidroelectric Power generation

Mexico

Onshore Wind

Actions	Objectives
• According to the Stormwater Pollution Prevention Plan, maintenance work was carried out during this period to reinforce the imperviousness of the Hazardous Waste storage facilities.	• To prevent pollution in soil and underground water.

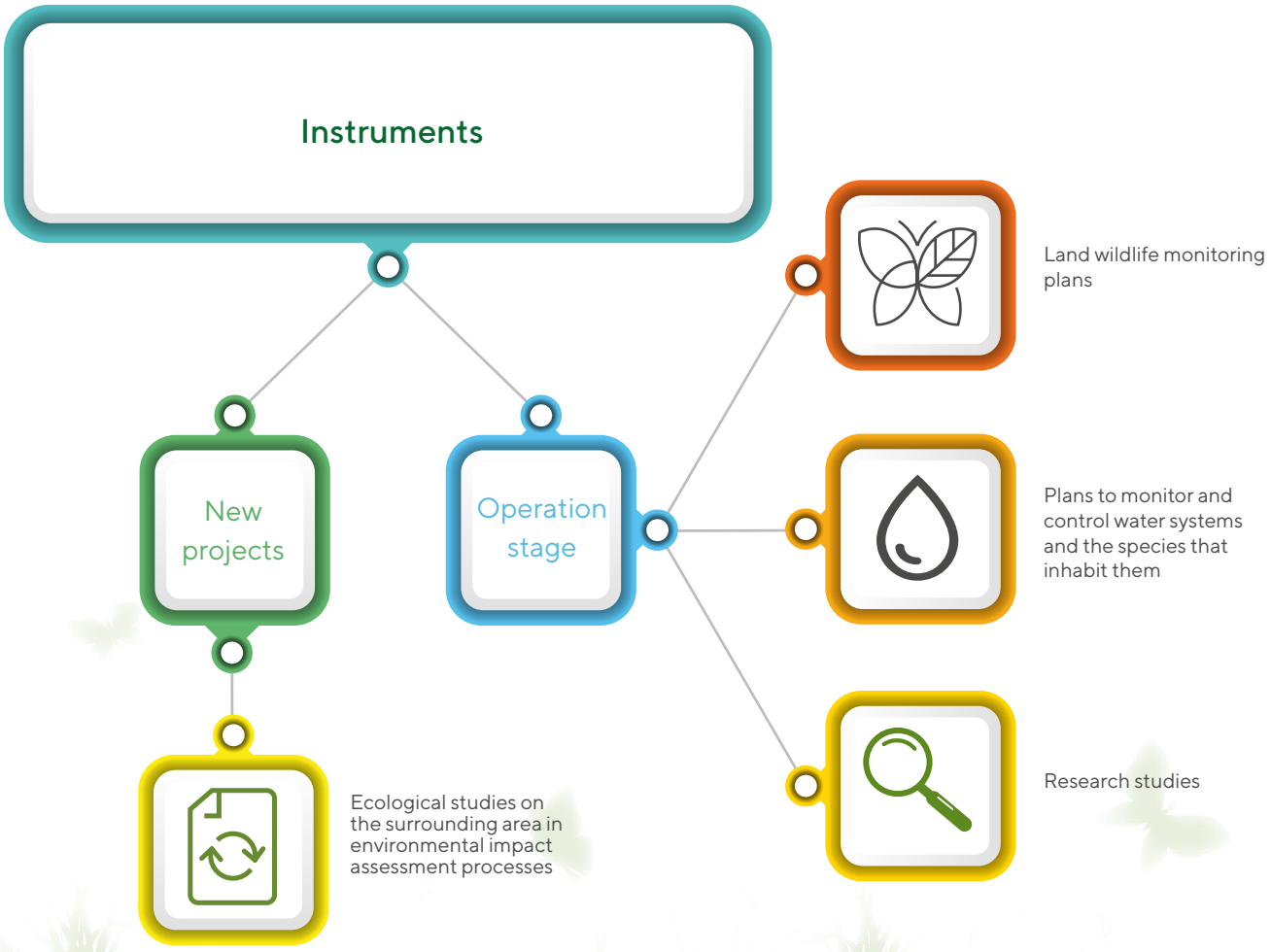
La Venta III Onshore Wind

4.2 Knowledge and preservation

Understanding and preserving biodiversity based on the precautionary principle, by conducting studies to assess interaction between the facilities and their surroundings so as to avoid or minimise their impact and enhance preservation

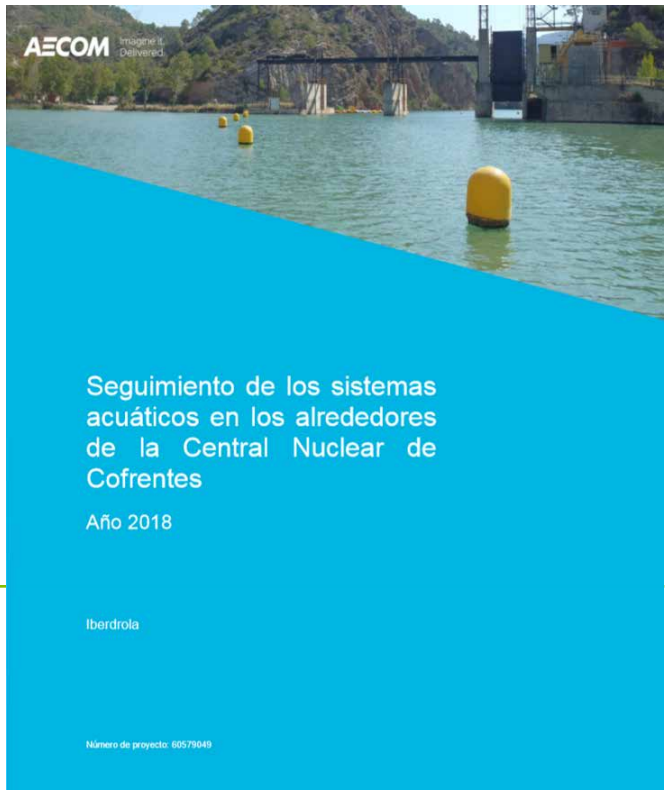
Iberdrola considers it essential to collect quality information regarding the areas surrounding its facilities in order to establish an adequate line of work and thus ensure continuous improvements in actions related to biodiversity. This is done by gathering information and addressing any existing knowledge gaps regarding the species that inhabit them and how they interact with the facilities. As a result, Iberdrola is able to identify the direct, indirect and cumulative impact they have on ecological values.

During the environmental assessment process prior to approval of the project, a number of studies are conducted around the facilities. These studies vary depending on the project and may include bird and chiroptera sighting studies lasting 12 to 24 months, endemic species studies or habitat characterisation studies. Whilst the facilities are in operation, programmes are carried out to monitor the species and/or habitats identified in the impact assessment so as to detect any impact caused to them and take actions to reduce such impact.



In the quest to gain further knowledge, collaboration agreements are signed with prestigious universities and specialised organisations to help us understand how the species and ecosystems behave and thus gain sound insights that can then be used to implement the most suitable correction measures where necessary.

During this period, Iberdrola carried out nearly 575 annual fora and fauna monitoring programmes, more than 60 monitoring and control programmes for aquatic systems and fish life and c20 research studies.



Study to monitor water systems in the area surrounding the Cofrentes NPP

Spain

Iberdrola also carried out more than 210 monitoring programmes involving birds and chiropters and more than 40 monitoring and control programmes for aquatic systems and 9 research studies/ projects.

Nuclear Power Generation

Actions	Objectives
• Bird Monitoring Programme to characterise the structure and dynamics of the bird community at the Arrocampo reservoir in collaboration with the University of Extremadura as part of the Individual Interim Storage Facility project in Almaraz.	• To characterise the birds in the SPA of the adjacent reservoir
• Ecological monitoring at the reservoirs of Arrocampo and Torrejón. Monitoring Programmes to annually characterise the condition of the reservoirs in terms of limnology and ichthyology.	• To protect fish populations
• Hydrobiological programme. "Monitoring the water systems around the Cofrentes NPP" so as to determine and control its impact on the environmental and biological conditions of the Embarcaderos reservoir by analysing hydromorphological, physical, chemical and biological quality indicators.	• To protect fish populations
• Other monitoring programmes such as monitoring the potential impact of the Trillo PP on the river Tagus or monitoring zebra mussel larvae and the population of macrophylls.	• To protect fish populations and eliminate invasive species

Combined cycle power plants

Actions	Objective
• A study was conducted at the Arcos Power Plant to assess the ecological condition of the Majaceite river according to biological, hydromorphological and physical, chemical quality indicators. It was concluded that the ecological condition of the river is moderate, both upstream and downstream.	• Control and monitoring of fish species and macroinvertebrates, and biological, hydromorphological and physical, chemical quality
• Ecological study on the river Tagus near the Aceca Complex. Assessment of the ecological condition of the stretch of the river Tagus into which the power plant discharges, analysing biological, hydromorphological and physical, chemical quality.	• To gain a greater understanding of the ecological condition of the river Tagus
• A groundwater control network (piezometers) provides for six-monthly measurements at the Tarragona Power and Escombreras plants to ascertain the behaviour of the aquifer and the substances present in it.	• To prevent repercussions on underground water
• Collaboration with the Government Authorities within the framework provided by the Escombreras Valley Business Association, standardising the control tasks carried out by companies like us who discharge into the body of water known as La Manceba-Punta Aguilones to ensure that the information reported is reliable, taking into account synergies in the waste discharged in the various activities. Establishing standardised indicators for control purposes, such as the MEDOCC and/or BOPA indexes (on the presence or absence of pollution indicator species in benthic communities), and the CARLIT and/or BENTHOS indexes (on the presence or absence of species of macroalgae indicating pollution).	• To protect fish populations and improve water quality
• In 2018, the Santurce Plant performed a comprehensive analysis of the water column in the discharge area (temperature, salinity, dissolved oxygen, chlorophyll and transparency) and the structure of benthic communities (flora and fauna), analysing their composition, abundance, diversity and biomass, and confirmed that the discharge from the plant had no effect on the hydrological conditions of the area.	• Protecting fish life

Networks

Actions	Objectives
• In the ALETEO project, a technical manual of good practices was drafted, which included standard solutions for adapting supports and avoiding electrocution. Based on different pylon models and their characteristics, a standard solution was given, as recommended by the Standardisation and Environmental authorities. The guide book contains the requirements set out in Royal Decree 1432/2008 and the guidelines issued by the MITECO[15].	• Birdlife protection best practices

15 Ministry for Ecological Transition and Demographic Challenges

Onshore Wind

Actions	Objectives
• Continuing the Environmental Wildlife Monitoring programme. Lists are drawn up to keep a record of birdlife and/or chiroptera and collision control measures are performed in 108 parks.	• To protect birdlife and chiroptera
• Study on the Golden Eagle around the Maranchón Wind Farm Complex (Guadalajara). The work carried out includes checking the golden eagle territories located on the periphery of the Maranchón Complex, installing two camera traps on platforms to study their diet, plus two more cameras at bait stations, and using GPS/GSM GPRS transmitters to tag regional golden eagles. Their movements will be tracked in coming years, as will their use of space and their interaction with wind farms.	• Protection of the golden eagle  Golden eagle
• Studying populations of Griffon Vultures in Albacete and how they interact with wind farms. This includes a bibliographical study, field surveys recorded during different times, researching deaths, and drawing up a report with conclusions. This study is carried out in collaboration with the University of Salamanca.	• Protection of the griffon vulture  White-rumped vulture
• Monitoring use of space by chiropters at the Maranchón wind farm complex (Guadalajara). Throughout 2019, work was carried out to monitor occupation of shelters and take nocturnal samples using listening stations.	• To promote habitat for chiropters
• Studying the progress of steppe bird populations around the El Carril and Alto de la Degollada wind farms, and analysing the potential impact of the wind farms on those populations.	• To protect steppe birds  Red partridge

Actions

- In 2018, the Science department published the results of the study on the behaviour of the Lesser Kestrel in the area surrounding Iberdrola facilities. This Iberdrola project in collaboration with the University of Salamanca arose from the need to understand the incipient number of accidents concerning this species that had not previously been registered, identify the cause and find solutions to prevent them. Following the diagnostic studies, it was found that this only occurred during certain months of the year. We identified that the cause of the problem lied in insect niches, especially orthoptera, which proliferate at the base of wind turbines during those months. Ploughing the land at those times of the year has proven highly beneficial in reducing the number of incidents concerning kestrels and wind turbines. In parallel with this work, artificial nesting boxes were installed at the basilica of Villanueva de la Jara (Cuenca) and educational panels on the species were put up in partnership with the Administration of Castile-La Mancha to encourage lesser kestrel colonies to settle in the region. These efforts have helped to stabilise populations of kestrels in Sisante.

Objectives

- Protection of the lesser kestrel

Ploughed fields on the wind farm. IMAGE: María Suárez (USAL)

Lesser kestrel (Falco naumanni)

Hydroelectric Power Generation

Actions	Objectives
• Limnology control work continues at the more eutrophicated reservoirs in the basins of the rivers Douro and Tagus so as to prevent any potential impact on aquatic animals.	• To prevent possible impacts on the wildlife located downstream of the reservoirs
• Study to monitor the life cycle of the Zebra Mussel (*Dreissena polymorpha*) in the Cortes II-La Muela system, determining the periods of presence/absence of larvae in the water, so as to define a protection strategy adapted to the specific habitat of the Zebra Mussel in that area.	• Reduction of invasive species
• Performing feasibility studies on the use of fish passes at the weirs of Doña Loba, San Lázaro, Cernado, Vozqueimado, Casteligo and Parafita.	• To protect fish populations
• Soil studies at all facilities according to Royal Decree 9/2005 to ensure there are no concentrations of contaminant substances suggesting that the soil is contaminated.	• Prevention of soil contamination
• Collaboration with the hydrography division for basins within the Basque Country to find out more about how to reduce this invasive species and learn best practices.	• To reduce populations of Zebra Mussels, an invasive species

United Kingdom

Onshore Wind

Actions

- ScottishPower Renewables has 56 monitoring activities across operational sites which relate directly to wildlife. The majority of monitoring activities are for birds but also include monitoring of chiropters, great crested newts, otter, water voles and fish. ScottishPower Renewables also carry out fatality monitoring at every onshore turbine on a weekly basis. This is done voluntarily to assess the impact of the turbines on birds and chiropters, using operational staff who are carrying out site inspections.
- Monitoring is carried out annually at Beinn an Tuirc windfarm to check breeding success of the resident pair of golden eagle. To date 9 chicks have been fledged at the site, the most recent in 2018.

Objectives

- Species include golden eagle, chiropters great crested newts, otter, water voles and fish.

Chicks of golden eagle at Beinn an Tuirc windfarm

Actions	Objectives
Bird monitoring	
• ScottishPower Renewables are committed to approximately 46 bird monitoring projects across 25 sites. Projects include general surveys to monitor breeding birds, wintering birds and flight activity on windfarm sites, as well as species specific surveys. In 2019 the final year of a long-term monitoring programme to investigate the impact of windfarms on wading birds (including curlew and snipe) was carried out at Dun Law Windfarm. The project was carried out in partnership with the Royal Society for the Protection of Birds (RSPB) who undertook the field work and are now in the process of preparing the results for publication. The preliminary results show that, although there were population fluctuations in species across years, there was no significant difference between the pattern found on the windfarm sites when compared to the control sites.	• Breeding birds, wintering birds and flight activity on windfarm sites

Curlew (Photo courtesy of RSPB)

• ScottishPower Renewables are at the forefront of research and innovation into habitat restoration, which has been acknowledged by the International Union for Conservation of Nature (IUCN), who in 2018 appointed ScottishPower Renewables as lead author of the chapter on deforested peatland restoration within the upcoming peatland restoration guidance paper. ScottishPower Renewables have shared their expertise by hosting numerous site visits for key stakeholders, including leading a peatland restoration training session for Forestry and Land Scotland employees; and hosting organisations including the Scottish Green Party, the World Wildlife Fund and Natural Resources Wales.	• Habitat restoration

Peatland restoration at Black Law

Offshore Wind

• ScottishPower Renewables (Offshore) are founding members of the Offshore Wind Strategic Monitoring and Research Forum (OWSMRF) alongside other industry representatives which fund research into key priority research, initially through a Pilot project focused on ornithological issues. The project has developed scientific scopes of work to fill evidence gaps in understanding the impacts from offshore wind turbines on seabirds, specifically kittiwake, by stakeholder collaboration and expert input. Expansion of the pilot is under consideration 2020. In addition, all Offshore projects have pre-construction through to operational monitoring plans.	• Improve knowledge of the interactions of offshore wind farms in birdlife

Networks

- In the latest regulatory business plan (RIIO T2) Energy Networks have committed to the implementation of Biodiversity Net Gain. This will provide greater emphasis to the avoidance of important habitat and will further ensure the replacement, improvement and increased provision of habitat across the licence area. The Transmission project portfolio contains over 190 projects and each one will deliver wider enhancements focused on biodiversity over the next 5 years to 2026. Through this proactive approach, Energy Networks will embed biodiversity protection and enhancement into their Business Plans.

Actions	Objectives
• Energy Networks have made a commitment to the development of a wider approach to Environmental Net Gain or Natural Capital, completing a ground breaking Natural Capital Pilot of Living Landscape areas within their network. This will inform the planning and development of future essential network development. This commitment will further enhance the environmentally led approach to Transmission Infrastructure which Energy Networks pioneered in the UK.	• Looking to the Future 

• During Energy Network's Year of Innovation (2019) a spotlight was placed on the development of ground-breaking ideas and initiatives to drive deployment of an integrated management and implementation approach to:
  • Achieving environmental gain.
  • Utilising a higher degree of existing grid infrastructure which reduces the need for new infrastructure and associated development footpr.
  • Applying more advanced technology to better map and plan for the habitat protection and enhancement within project development areas. For example, the use of drones and remote sensing have provided more information to inform crucial investment decisions and embed decision making about protection and restoration of natural capital at an earlier stage than ever before in the life of a project.
	• Deploying innovative techniques

United States

Onshore Wind and Solar

- Processes and practices to evaluate and minimize impacts and support regulatory compliance are guided by Avangrid R's Corporate Wildlife Plan and implemented using a tiered approach based on the U.S. Fish and Wildlife's Land-based Wind Energy Guidelines (WEG). The WEG approach involves 1) preliminary site evaluation, 2) site characterization, 3) field studies to document wildlife and habitat and predict impacts, 4) post-construction studies to assess fatality risk and impacts to species of concern and habitat, and 5) other post-construction studies and research (e.g., species-specific studies). Coordination with applicable agencies (e.g., U.S. Fish and Wildlife, state agencies) may occur throughout this process.

Actions	Objectives
• Avangrid Renewables implements a Wildlife Monitoring and Reporting System that involves voluntary, long-term monitoring at its operational assets conducted by operations personnel. Operations personnel internally report wildlife incidents discovered during standardized inspections and incidental to daily work activities. Data is reviewed internally and may inform adaptive management practices to manage risk. Monitoring occurred at 56 facilities in 2019.	• All wildlife, with focus on birds and chiropters
• Conducted an ultrasonic acoustic chiropter deterrent study at Bue Creek Wind Project in a joint research program between Avangrid Renewables , Chiropter Conservational Internation, the US Geological Survey, and the US Dept of Energy. Measured the reduction in chiropter fatalities at turbines with the deterrent and those without Results are expected in 2020.	• Avoid and minimise potential impacts on Chiroptera
• Conducted a study of the IdentiFlight eagle detection technology at the Manzana Wind Power Project. The main objectives of the study were to evaluate the system's ability to correctly detect and identify eagles and evaluate how effectively eagle collision risk can be predicted from aspects of eagle position and movement based on 3-dimensional flight paths from eagles tracked by the system. Results are expected in 2020.	• Eagle 

Actuaciones	Objetivos
• Manzana Wind Project has implemented a geofence technology to manage risk to California condor. A majority of condors in the southern California population have been equipped with radio frequency and global positioning system technologies to track their movements. When a condor wearing a transmitter crosses the geofence boundary surrounding Manzana, a third-party providing remote monitoring of condor movement notifies Avangrid Renewables' National Control Center. The National Control Center will curtail a portion of turbines in proximity to the condor to minimize potential risk.	• California condor
• Conducted a test of the DTBird detection and deterrent system at the Manzana Wind Project.	• Raptors

Hydroelectric Power generation

Actions	Objectives
• Environmetal studies were carried out as part of the New York State Electric and Gas (NYSEG)'s process of completing a comprehensive Federal Energy Regulatory Commission (FERC) relicensing of NYSEG's Upper Mechanicville 18.5 MW Hydroelectric Project (Project), which is located on the Hudson River in Saratoga and Rensselaer Counties, New York. After a thorough analysis of the impacts of continued operations and collaboration with the New York State Department of Environmental Conservation, the United States Fish and Wildlife Service, and Trout Unlimited, NYSEGwill receive a new operating license from FERC to continue to generate and supply renewable hydroelectric energy to NYSEG's customers for the next 50 years. • Under the new license, NYSEG will be implementing measures to help enhance the aquatic and terrestrial resources associated with the Hudson River. In particular, the Project will provide for passage of American eel, shad, and additional migratory fish species for which the Hudson River provides a valuable habitat. The Project will also provide a continuous release of water in support of the aquatic species that live and spawn in the downstream river reach. Through NYSEG's commitments to the local environment, Project operations will also include measures to protect bald eagles, protected species, and the natural vegetation that occurs within the Project area.	• Relicencing Studies and Enhancement measures on protection of bald eable, american eel and shad

NYSEG Upper Mechanicville Hydroelectric Facility

Anguila Americana @HDR

Brazil

- During the implementation and operation of its projects and in compliance with legal and environmental licensing requirements, the Neoenergia Group develops a series of environmental actions, plans and programmes that allow us to learn more about the flora and fauna around our facilities.
- This information and knowledge accumulated with each new study or campaign assists our companies' decision making, seeking the most efficient way to operate our assets with the least impact on biodiversity and, whenever possible, promoting the improvement of the environmental quality of the areas where we operate.
- This research and monitoring sometimes reveals information that was previously unknown, such as the discovery of new species of animals and plants never before recorded by scientists.
- One point that deserves highlighting is that these studies (diagnosis, inventories and monitoring) are closely related to biodiversity conservation, since they are instruments that promote a strategic alignment between different players, allowing agreed and developed environmental programmes to be in accordance with the conservation priorities of a certain area.

Combined Cycle Power Plant

Actions

- The team at Termopernambuco conducts studies and monitors the marine biotic environment in the area of direct influence of the cooling system of Termopernambuco plant. The Biological Productivity Monitoring Programme of the plankton in the water catchment channel and accommodation tank provides information that helps our teams to minimise the impacts of our operations on the marine environment.

Objectives

Termopernanbuco

Hydroelectric Power Generation

- The Hidroelectric Power generation companies develop a series of Monitoring Programmes that provide data of great relevance for the development of our activities. Some of these programmes are highlighted below:

Fauna Research and Monitoring Programmes

In general terms, Fauna Monitoring programmes aim to generate information to evaluate changes in the structure, distribution, abundance, biology and ecology of the species that occupy the surroundings of our facilities, providing fundamental information for the adoption of the best strategies to minimise impacts and promote environmental quality improvement in the regions where we operate.

Among these programmes are studies and monitoring of ichthyofauna, avifauna, herpetofauna, entomofauna bioindicadors, mastofauna, chirofauna, and genetic research and conservation programmes. (See description of the programmes in *Annex I for further information*).

Ichthyofauna Monitoring Programmes

Conservation of endemic species Igaçu long-whiskered catfish (*Steindachneridion melanodermatum*). Baixo Iguaçu hydroelectric power plant

William´s toadhead turtle (*Phrynops williamsi*). Baixo Iguaçu hydroelectric power plant

Avifauna Monitoring Programmes

Spizaetus melanoleucus (black-and-white hawk-eagle, on the Paraná endangered species list. Baixo Iguaçu hydroelectric power plant

Otter Monitoring Programme

(*Lontra longicaudis*). Baixo Iguaçu hydroelectric power plant

Herpetofauna Monitoring Programme

Micrurus altirostris. Baixo Iguaçu hydroelectric power plant

Iguana iguana. Teles Pires hydroelectric power plant

Primate Monitoring - a new kind of titi monkey. New species of primates described, discovered in the region:

(*Plecturocebus grovesi*). Teles Pires hydroelectric power plant

Subprogramme - Fish migration and biotelemetry

Pseudoplatystoma punctifer. Teles Pires hydroelectric power plant

Flora Monitoring and Research Programmes

- The objective of the Flora Monitoring Programmes, in general, is to verify and monitor the remaining vegetation cover around the areas altered by the implementation and operation of our projects, and to define the best strategies for the conservation of flora species.

New species of orchids found

- In 2012, a new species of orchid was found on the banks of Teles Pires river, in Paranaíta, Mato Grosso.
- Named "*Catasetum telespirense Benelli & Soares-Lopes*", the new species pays homage to the place where it was found and to the plant which was responsible for the study. Both the river and the plant are called Teles Pires.
- Between the discovery and the publication in Revista Phytotaxa, three years have passed, the period necessary for a potential new species to be compared with those already described in the genus and to be confirmed as previously unpublished.
- The discovery is the result of joint research by Herbam/ Unemat, Companhia Hidrelétrica Teles Pires (CHTP) and the Friends of the Alta Floresta Natural History Museum.

Catasetum telespirense

Limnological and Water Quality Monitoring Programmes

- The objectives of these limnological and water quality monitoring programmes are: to monitor the changes resulting from the implementation and operation of our projects on water quality and its limnological aspects; to monitor the natural seasonal variations of the main physical-chemical and biological constituents of the water; to define and monitor the evolution of the condition of the water quality of the reservoir and the contributing rivers.

Onshore Wind

- In our wind farms it is no different. We have also developed a series of monitoring programmes that provide data of great relevance to the development of our activities. Below we will highlight some of the programmes implemented.

Bird Monitoring Programme

- The Programme aims to characterise the bird community in terms of composition, richness, abundance, diversity, density, distribution; to detail the similarity in composition and abundance of birds between units; identify and characterise environmental variables (climate) that present possible associations with birds; to verify the existence of seasonal patterns of occurrence of birds (migrants vs. residents); in addition to prepare analyses that allow a spatial-temporal assessment of the bird community.

Terrestrial Mastofauna Monitoring Programme

- The focus of this programme is to identify the existence of corridors for the displacement of fauna, as well as to characterise the land mammal populations, their composition, richness, abundance, diversity, density, distribution; to detail the similarity in the composition and abundance of chiropters between units; to identify and characterise environmental variables (climatic) that present possible associations with mammal populations; to verify the existence of seasonal patterns of occurrence; besides characterising patterns of foraging activity and displacement close to the projects.

Flyting mastofauna Monitoring Programme (chiropters)

- Its purpose is to define the chiropter community in terms of composition, richness, abundance, diversity, density, distribution; to detail the similarity in the composition and abundance of chiropter between units; to identify and characterise environmental variables that present possible associations with the chiropter population; to verify the existence of seasonal patterns of occurrence; and to characterise patterns of foraging activity and displacement near wind generators.

Winged fauna mortality monitoring sub-programme in wind turbines (birds and chiropters)

- The Programme has activities focused on the analysis of mortality of bats and birds by collision and/or barotrauma with wind turbines, identifying the species, periods of the year and places with higher mortality of chiropters and birds.

Herpetofauna monitoring programme:

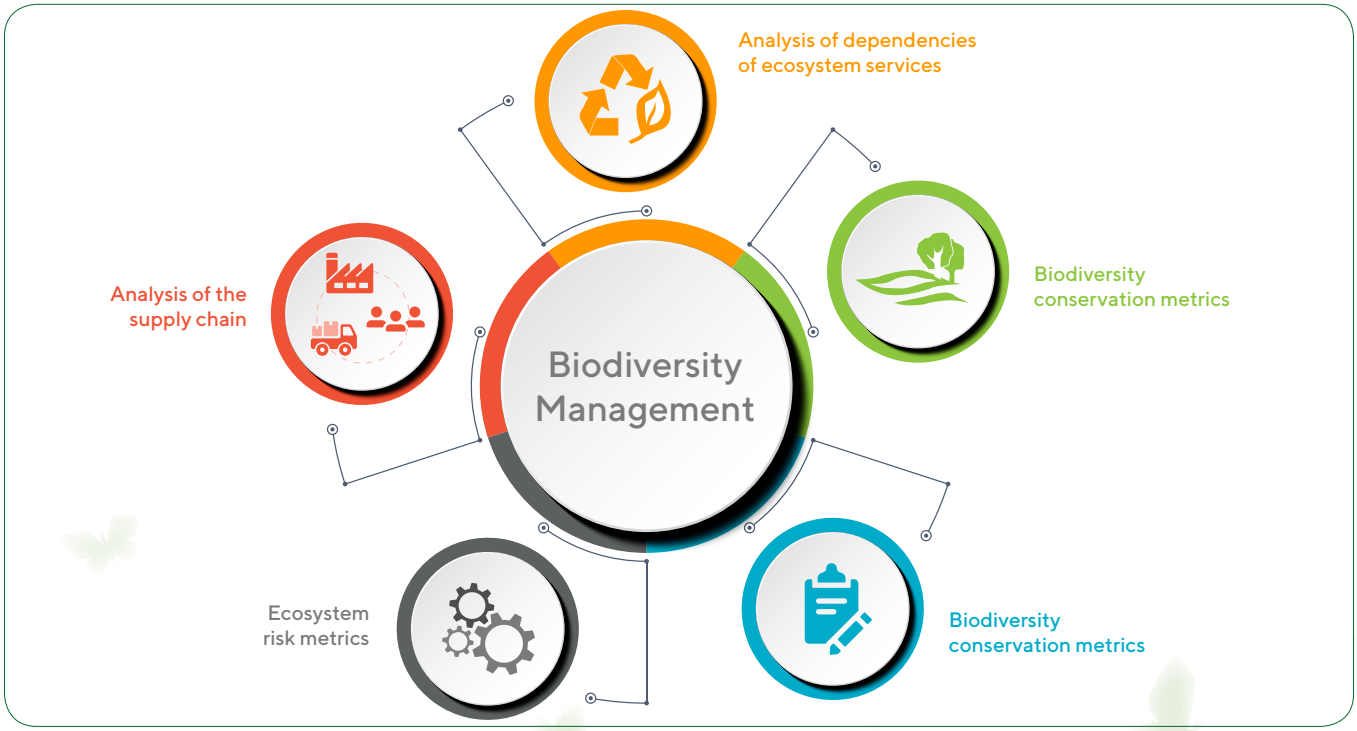
- This aims to define the amphibian and reptile community in terms of composition, richness, abundance, diversity, distribution; to describe the similarity in composition and abundance of amphibians and reptiles; to identify and characterise environmental variables (climate) that present possible associations with local amphibian and reptile populations; and to elaborate analyses that allow the spatio-temporal evaluation of amphibian and reptile populations.

Networks

- In the distribution companies it is no different. We carry out all the environmental studies necessary for the implementation of new structures that vary according to the complexity of the project and the environmental sensitivity of the implementation area. Environmental Impact Studies (EIA), Forest Inventories, Detailed Environmental Programme Reports (RDPA), Simplified Environmental Reports (RAS), among others, are conducted.
- All these initiatives contribute, in different degrees, to the collection of scientific data that guide companies' decision-making to promote sustainable and environmentally responsible growth throughout the Neoenergia Group.

Pilot projects for the application of the LIFE methodology by the Hydroelectric Power generation companies, as well at Termopernambuco

- In 2019 a major diagnosis was made of the availability of information related to biodiversity in the generating company. In 2020 we will carry out pilot projects for the application of the LIFE methodology with Hidroelectric Power Generation companies and also in our thermal plant, Termopernambuco, thus reinforcing our commitments to biodiversity and the conservation of our environmental heritage.
- LIFE Institute's mission is to promote the engagement of the business sector in biodiversity conservation and to strategically guide organisations of any size and sector in developing a comprehensive corporate responsibility agenda compatible with current global challenges, developing integrated tools and methodologies related to business management for biodiversity conservation and maintenance of ecosystem services.
- The LIFE Methodology is characterised by being robust and measurable, integrating business and biodiversity, being adaptable to any country or region and applicable to companies of any size or sector, providing strategic guidance to organisations to ensure the effectiveness of their conservation projects, and allowing organisations to objectively quantify their impact on natural resources.
- The LIFE Methodology encompasses the following interlinked elements, ensuring the management and conservation of biodiversity:



Biodiversity Management

- With the application of this methodology, the Group's companies are able to measure their impact on biodiversity and the effectiveness of their actions to minimise that impact, promoting an increase in environmental quality, the conservation of ecosystems with a focus on the maintenance of ecosystem services.

Mexico

Combined Cycles Power Plants

Actions	Objectives
• Measuring physical and chemical parameters in the discharge of the Dulces Nombres combined cycle power plant. We analysed the discharge parameters from the Power Plant to the aqueduct leading back to the SADMON (national body) water treatment plant.	• To ensure discharge water quality
• Measuring environmental indicators of marine biota (nekton, plankton) in the marine ecosystem adjacent to the Baja California combined cycle power plant.	• Preservation of marine biota

Onshore Wind

Actions	Objectives
• Programa de avistamiento de aves en las cuatro estaciones en los Parques Pier II y Venta III y en los periodos de primavera y otoño en los parques Bii Nee Stipa. • At Venta III and Pier II, Iberdrola introduced a protocol for halting wind turbines in the event of a collision.	• To monitor birdlife and chiroptera

PIER II Onshore Wind Farm

4.3 Collaboration with stakeholders to enhance biodiversity

Collaborating with stakeholders, bearing in mind their needs and expectations regarding biodiversity so as to include them in action plans and work together on research projects

Iberdrola's commitment towards biodiversity extends to important actions such as supporting conservation programmes for endangered species and restoring protected habitats, as well as collaborating with and becoming a member of environmentally friendly organisations, etc.

The various businesses of the Group and the Iberdrola Foundations of the different countries in which we operate sponsor several projects developed together with a series of organisations (NGOs, etc.).

During the period the group worked on nearly 40 initiatives.

4.3.1 Spain

Practical Guide to Ecological Restoration.

The Practical Guide to Ecological Restoration was drawn up in collaboration with the Enterprise and Biodiversity Initiative of the Biodiversity Foundation. This Guide is an operational handbook to help take on Ecological Restoration as the optimal approach and methodology for ecosystem recovery. Referenced in the State Strategy on Green Infrastructure and Ecological Connectivity and Restoration as a recommended methodology, this Guide involved a collaborative effort by over 100 experts.

Energy & Natural Capital Working Group.

Iberdrola has put its hard work and experience together with that of another seven Spanish energy companies to spearhead a collaborative project unlike any other in the world: we have created the first working group dedicated to natural capital and energy. The goal of the group is to work on implementing the Natural Capital Protocol in the energy sector, exchanging the know-how and experience needed to develop a common methodological framework to identify, measure and appraise natural capital. This initiative aims to become a benchmark and encourage other corporations and sectors to engage in similar collaborative learnings and to share best practices so as to broaden their scope for the sake of sustainable development.

Representatives Cepsa, EDP Spain, Enagás, Endesa, Red Eléctrica, Iberdrola, Naturgy and Repsol and the coordinators Azentúa and Ecoacsa

Recovery of the *Parachondrostoma arrigonis*

Fostering the recovery of the Parachondrostoma arrigonis, an endangered species of fish endemic to the river Cautabán, a tributary of the river Júcar. Iberdrola and the Town Council of Jalance signed a collaboration agreement in 2016 to aid in the recovery of this species of fish in the river Cautabán, which flows into the river Júcar. This endemic species was in danger of extinction at the time. Various vegetation clearance tasks were carried out along the banks of the river Cautabán as it runs through Jalance, in collaboration with students from the La Malvesía Family Farming School, under the responsibility of the town council and the supervision of the competent authorities.

Initially, the idea was to immediately release some specimens so as to repopulate that stretch of the river. However, due to difficulties breeding the fry in captivity, it has not been possible to release the first specimens until now, three years on, with the confidence that the species will recover in the river Cautabán. The specimens put back into the river were bred at the Freshwater Species Preservation Centre in El Palmar (Valencia).

Recovery of the *Parachondrostoma arrigonis*

25th anniversary of the "Flora Microreserves"

Participating in and sponsoring the Conference and exhibition entitled '25th anniversary of the "Flora Microreserves"' to introduce the audience to this type of wildlife protection, how important and widespread it is, and which species are currently being preserved in Spain and Europe. There are now 312 of these Flora Microreserves in the Valencian Community, covering more than 2,000 hectares of land which span at least 145 municipal areas in Alicante, Castellón and Valencia. The special protection network includes 2000 plant species, i.e. 56% of the region's flora.

Collaboration with LIFE projects within the ALETEO Project

Within the ALETEO project, we are working on a series of LIFE projects to preserve endangered emblematic species. Our collaboration basically consists in adjusting the highest risk pylons in the areas identified in the projects.

- The aim of LIFE Rupis is to preserve the Egyptian vulture and the Bonelli's eagle in the Arribes del Duero and Douro International Natural Parks.
- AQUILA a-LIFE Programme: Bonelli's eagle in danger of extinction
- MONACHUS Project, recovery of the cinereous vulture (Aegypius monachus) in the Iberian Mountain Range.

Tagus International Natural Park

Habitat improvement project in the Tagus International Natural Park. Under the collaboration agreement between the Iberdrola Spain Foundation and the Regional Ministry of the Environment and Rural Areas of Extremadura, a project has been executed to improve the habitat of the little bustard and other steppe birds in the Tagus International Natural Park. This specifically

applies to the public stretch of land known as La Fuente, located in the municipal area of Villa del Rey in the province of Cáceres, which belongs to the SPA (Special Protection Area) and SCA (Special Conservation Area) of Llanos de Alcántara y Brozas.

Although the population of little bustards (*Tetrax tetrax*) in Spain is the most significant in Europe, this bird shows a global downward trend in population due mainly to the transformation and destruction of its natural habitats.

The major threat for the little bustard population is closely linked to the direct loss of its natural habitats, which are affected by early crops and harvests which occur while it is incubating or breeding chicks, along with other factors such as overgrazing. To combat the decline of the little bustard, the Iberdrola Spain foundation has worked specifically on planting a permanent improved meadow and sowing seeds to serve as food and as a habitat for steppe birds to nest in.

Little bustard

Migra Project

The Migra Project involves studying the movements of migratory birds. It is conducted by the Iberdrola Spain Foundation in collaboration with the Spanish Ornithology Society SEO/Birdlife. This ambitious project stems from Iberdrola's commitment to produce energy that respects birdlife.

The programme intends to preserve Spain's birdlife by gaining a deeper understanding of the migratory and breeding habits of birds using cutting-edge technology for geolocation and remote tracking. Different species have been tagged with GPS devices in order to learn all the details of their migration patterns including duration, routes, speed and the altitude at which they fly, places where they rest and feed, and whether the routes differ from one year to another. This enables anyone to follow their movements at www.migraciondeaves.org and also helps to prevent possible threats that may endanger them, as well as providing essential insight for important scientific studies.

White stork

To date, the MIGRA Programme has ringed 1,107 birds from 32 different species, and useful information has been gathered from 648 birds of 31 different species.

Knowing how these populations are distributed not only reveals where they are, but also how profoundly the behaviour of these species is altered by factors such as human activity (as we generate huge amounts of waste, use up vast areas for irrigated crops and so on) and rising temperatures.

Anexo I Additional Information on Actions describes some of the publications made under this project.

Bearded vulture recovery project

Collaboration agreement between the Iberdrola Spain Foundation and the Foundation for the Preservation of the Bearded Vulture to study how climate change affects this and other Alpine birds. During this period, we continued installing further traps and collecting eggs to be hatched, reared and subsequently released. Twelve specimens have already been released in the Picos de Europa National Park.

Whilst conducting the study in this area of the Pyrenees, it was found to house insects that can transmit the West Nile virus and avian malaria. Thanks to this research work, which aims to assess whether climate change increases the presence of insects from warmer areas that could affect the Bearded vulture, it was found that certain bird specimens have developed antibodies against these viruses, which are under the protection of the Aragon Regional Government and the Foundation for the Conservation of Bearded Vultures.

The scientific findings confirm that there are Culex mosquitoes and black flies (*Simuliidae*), both of which are vectors of the West Nile virus and avian malaria, in the Spanish Pyrenees in all areas studied except those at high altitudes or in dense forest areas.

This poses a new research challenge in addition to the conservation issues affecting the Bearded vulture. The West Nile virus is an eminently avian virus that tends to circulate between bird hosts and mosquito vectors. However, in recent years, it has spread virulently to parts of Europe where it had not previously been detected and has gone so far as to infect humans, occasionally causing death.

White stork

Study on thermal stress, immunosuppression and climate change in endangered birds of prey.

This is a research project conducted by the Iberdrola Spain Foundation in collaboration with the Aquila Foundation, with the key goal of determining how thermal stress (i.e. hotter temperatures brought about by climate change) affect the humoral immunity of endangered birds of prey. This project will last two years, and so far the results of the first year have been shared through scientific journals and talks at the veterinary departments of various universities in Valencia, Murcia, Cáceres and Madrid.

Workshops for "Building resilience in mountain socio-ecosystems as a tool for adapting to climate change"

An Iberdrola España Foundation project, in collaboration with the Living Territories Association and the Biodiversity Foundation, with a powerful social interaction component through six workshops, whose main objective has been to define and implement actions that improve the capacity to adapt to climate change in mountain territories, particularly in the Ordesa-Viñamala and Valles de Omaña and Luna Biosphere Reserves.

Forest Defence-Iberdrola

Collaboration agreement between the Iberdrola Spain Foundation and the Directorate General for Infrastructures of the Ministry of Defence under the programme named Forest Defence-Iberdrola. The aim is partial reforestation in Spanish military shooting and training areas. The first activity was located on the Renedo Cabezón shooting range, in the province of Valladolid, and involved replanting 49.5 hectares of land with more than 40,000 pine and oak trees. New reforestation projects in the Campo de Maniobra de la Sierra del Retín (Cádiz) and Albacete have already been completed and will be opened in 2020.

The reforestation of Renedo Cabezón in the Iberdrola Defence Forest plan

4.3.2 United Kingdom

Scottish Windfarm Bird Steering Group

In 2018 and 2019 ScottishPower Renewables participated on the Scottish Windfarm Bird Steering Group. The aim of the group is to investigate the impact of windfarms on birds, and encourage the sharing of knowledge and information between industry, conservation groups and statutory bodies. Work has been carried out to review the impact of windfarms on specific species (such as hen harrier) and to ensure that bird monitoring is cost effective and fit for purpose.

Conference on Wind and Wildlife

In 2019 the *Conference on Wind and Wildlife* was held in Scotland, with international attendants to discuss issues surrounding onshore and offshore windfarms and wildlife, and share knowledge and solutions.

ScottishPower Renewables' stand at Conference on Wind and Wildlife incorporating both onshore and offshore activities

As part of the conference, a field trip was hosted by ScottishPower Renewables at Whitelee windfarm, with delegates able to view the turbines up close, and learn about the ecological management measures in place at the UK's largest onshore windfarm.

Whitelee wind farm in UK

3rd conference on Offshore Ornithology

In November 2019, ScottishPower Renewables (Offshore) hosted the 3rd conference on Offshore Ornithology, a gathering of stakeholders and experts to discuss and share knowledge on seabirds and offshore wind development from UK and across Europe.

3rd Offshore Ornithology Conference in Glasgow, Scotland (November 2019)

The ScottishPower Foundation has also contributed to the protection and conservation of habitats and increased biodiversity by supporting environmental projects that are run by registered charities.

Dolphinwatch Aberdeen

Aberdeen is one of the best places in Europe to see bottlenose dolphins throughout the year, and through its Dolphinwatch project, RSPB Scotland helped to inspire a deep and lasting connection to marine wildlife in the area and a passion to protect it.

Funding enabled RSPB[16] to recruit staff to deliver a programme of awareness raising and conservation events, and helped them to introduce a new school outreach programme. The project ran from March 2018 to February 2019, and indirectly benefited an estimated 4687 people.

Dolphinwatch @RSPB Scotland

50 Years of Woods Mill

Woods Mill nature reserve – run by Sussex Wildlife Trust - was the first wildlife trust visitor centre in the UK when it opened in 1968. June 2018 marked half a century of engaging and inspiring the public to discover nature. Funded by the ScottishPower Foundation, the 50th anniversary celebrations enabled Sussex Wildlife Trust to make people more aware of the decline in some of the UK's most iconic species by encouraging them to take part in a programme of habitat conservation and Education.

The Wild Side of the Track

Building on the success of the project at Woods Mill, the ScottishPower Foundation awarded funding to Sussex Wildlife Trust again in 2019 to help it improve and develop the Deneway Nature Reserve for wildlife and the local community. The project helped them to run conservation volunteering days, wellbeing workshops and community events, and also helped to create woodland glades and enhanced spaces for wildlife.

Awareness-raising event. @ Sue Curnock

16. The Royal Society for the Protection of Birds (RSPB)

4.3.3 United States

Osprey Recovery Initiative – Cayuga Lake Basin

NYSEG and RGE continue to support and grow the recovering Osprey populations in New York State. We work very closely through positive partnerships with the New York Department of Environmental Conservation, The Cornell Lab of Ornithology's NestWatch Program, and The United States Fish and Wildlife Service to provide safe nesting locations for these magnificent raptors. By installing risers and standalone nesting poles t the Ospreys are able to establish safe locations at safe distances from our electrical facilities. NYSEG and RGE are proud to assist in the recovery of this important migratory bird.

Osprey nesting platform

Chiropters' Conservation – Chiropters Boxes

Myotis septentrionalis and *Myotis sodalis*

Myotis septentrionalis and *Myotis sodalis*, along with many other important chiropter species, are endangered or threatened in New York State. By installing Chiropter houses and roosting structures in appropriate locations along our ROW, NYSEG and RGE proactively provide habitat for native chiropter species. The Boy Scout of America's Eagle Scout Program assists with the building of the boxes based on proven designs from Bat Conservation International, a worldwide leader in Chiropter Conservation.

Arbor Day Initiative

NYSEG and RGE's Arbor Day Program provides hundreds of trees for our communities each year as part of our Arbor Day Initiatives. Seedlings are provided to local Schools within our communities and larger trees are planted in Towns and Municipalities across the State.

Educational talks are given by our local Foresters on the value of trees in our communities, including the importance of "Right Tree, Right Place" to ensure that trees and electrical facilities can exist in harmony for years to come. NYSEG and RGE also fully support the "Saluting Branches" Program. The Saluting Branches mission is to honor American service men and women by organizing volunteer tree and landscape care for the property dedicated to our veterans.

Justin Raynor speak to Pre-K local schools about the value of trees in our communities

Pollinator Partnerships and Native Plants

NYSEG and RGE sponsor and maintain several community pollinator and native plant gardens as well as maintaining thousands of acres of Utility rights-of-way (ROW) . They are in the process of applying for Monarch Butterfly CCAA Certification to recognize the efforts of our Vegetation Management Department to assist with the conservation, establishment, and maintenance of appropriate pollinator habitat on the ROW.

Monarch Partnerships

American Kestrel Recovery Project

NYSEG and RGE have installed and monitor dozens of American Kestrel nesting boxes in order to assist in the recovery of this important small raptor whose numbers have recently experienced a significant decline in New York State. By providing nest boxes – built with the assistance of local community members – placed on our utility poles in safe locations, nesting locations are provided for American Kestrels in an effort to assist with their population recovery.

NYSEG American Kestrel nest box ready to be installed

Protecting Critical Habitat & Biodiversity with the National Fish and Wildlife Foundation (NFWF)

Through four-year partnership with NFWF, the Avangrid Foundation will be protecting critical wildlife habitats and species, including hibernating chiropters throughout North America, fish and migratory forest birds in the Northeast, and grassland-dependent birds and mammals in the Northern Great Plains. Three programs were selected based on their on-the-ground projects working to provide impactful conservation outcomes in areas that are of particular importance to communities within AVANGRID's operational footprint.

In the first full year, the NFWF-Avangrid Foundation partnership has supported 15 different on-the-ground conservation projects to restore healthy forests and rivers in New England, to

improve management of the mixed grass prairie in the northern Great Plains, and to test treatments and management strategies to slow the spread of white-nose syndrome in chiropters.

California Condor Recovery Program with the Oregon Zoo

The Avangrid Foundation, in collaboration with Avangrid Renewables, is funding improvements that will expand the ability of Oregon Zoo to care for critically endangered California Condor (the "Thunderbird") and nestlings. The Oregon Zoo manages one of the most important Condor recovery and breeding centers, located in northwest Oregon. The Center supports condor reproduction in a protected environment, supervised and managed by a team of wildlife biologists. While California Condors have been reintroduced into the wild thanks to the efforts of the U.S. Fish and Wildlife Service Condor Recovery Program, they are currently only found in a small portion of their historical range.

California Condor

Advancing Ocean-Climate Research & Strengthening community capacity for science-based decision-making with the Gulf of Maine Research Institute (GMRI)

The Portland, GMRI is a global leader in marine and climate research, a national innovator in citizen science for education, and an essential contributor to science-based, engaged fisheries management. A five-year partnership to advance regional climate science will provide support for GMRI scientists focused on issues of climate resilience in our fisheries and other coastal industries in the Gulf of Maine region. The partnership will include interdisciplinary research objectives across ocean science, fishery management, and business and community resiliency, with a focus on community engagement and social impact in the Gulf of Maine region. In part, the grant helped make the recent Gulf of Maine 2050 International Symposium possible. The new funding will also fuel new research into shifting fish populations, vulnerability assessments for fishing ports in the Northeast and advancing new climate-ready fisheries management methods.

Wildlife Rehabilitation

Each year, the Avangrid Foundation hosts competitive grants to support Wildlife Rehabilitation that honors Avangrid's "Legacy of Caring" for wildlife and habitat preservation organizations with particular focus on avian rehabilitation groups. These partners play an important role in rehabilitation, community education and scientific understanding of species in and around our facilities, including birds of prey.

This grant program is available to select qualified wildlife rehabilitators organizations across the United States. In 2019 and 2018,15 separate grants to wildlife rehabilitators across the US were granted. Organizations include Hawks Aloft, an avian research, conservation, and rescue organization in New Mexico to support their volunteer-based Raptor Rescue Program and a new incubator to help baby raptors thrive.

Avangrid Renewables Collaboration Initiatives

- HawkWatch International - Eagle-Vehicle Strike Project. Support research to identify and quantify risk factors associated with bald and golden eagle vehicle collisions associated with feeding on roadkill, primarily during the fall and winter months when live prey is less available.
- On the Advisory Council of the Wind Wildlife Research Fund. The Fund is a collaboration between wind industry and other stakeholders to prioritize, investigate, and fund wind-wildlife research.
- Support the Oregon Eagle Foundation through funding to conduct aerial surveys of golden eagle nests on the Columbia Plateau in north-central Oregon.
- Funder of Bat Wind Energy Cooperative. Contributed efforts to address white-nose syndrome and other research activities
- Member of the Avian Power Line Interaction Committee (APLIC), a collaboration of electric utilities, wildlife resource agencies, and conservation groups working to understand bird/power line interactions and develop methods to minimize impacts to birds and power outages resulting from electrocution and collision.
- On the board of the American Wind Wildlife Institute, a collaboration of wind industry leaders' wildlife resource agencies, and science and conservation organizations. Purpose is to establish the scientific groundwork and best practices for wind farm siting and operations through initiatives including wind-wildlife research, mitigation, and education.

4.3.4 Brazil

Neoenergia Group, committed to environmental conservation and aware that the private sector is essential to stop the loss of biodiversity, works to incorporate and disseminate best practices and strategies, collaborating with its interest groups to increase synergies among the different players and initiatives.

Neoenergia actively participates in the Câmara Temática de Biodiversidade, promoted by the Brazilian Business Centre for Sustainable Development (CEBDS), where joint actions and strategies are discussed among the different segments of the private sector. This forum follows international discussions under the Convention on Biological Diversity and develops advocacy, training and dissemination of issues related to Biodiversity and Ecosystem Services.

Meliponiculture Project in the Itamboatá Valley

The Meliponicultura Project in the Itamboatá Valley is promoted by COELBA, in partnership with the Terra Mirim Foundation The project was created with the objective of making viable the rational breeding of the Uruçu bee (*Melipona scutellaris*), creating opportunities to improve family income and the quality of life of small producers, in a sustainable way.

Technicians at work

This practice has become an alternative for sustainability in areas of the Atlantic Forest. Rational breeding, combined with proper management and the involvement of local producers, has helped to ensure the conservation of this species of bee, as well as the essential pollination services they provide.

Uruçu Bees

Training courses and technical follow-up were offered to the beekeepers participating in the project, as well as the construction and maintenance of a beekeeping school, in order to facilitate the diagnosis of the problems faced in beekeeping, as well as the study of viable solutions for a better hive management.

The 15 production units involved in the project receive specialist technical assistance. The meliponic pastures were expanded, as were the number of bee colonies (Melipona scutellaris) and the number of hives distributed. The producers who participated in the project from the beginning are already marketing the honey they have produced and are planning to expand.

Training course- theory class

As a result of this project, we can highlight the collection of more than 159 swarms of Uruçu bees distributed in the Itamboatá Valley, the planting of 2500 seedlings of melitophile plants (which attract bees), the collection of 43 litres of honey, a qualified beekeeping school, a honey processing unit, the demarcation of an ecological trail, in addition to a network formed by beekeeping residents and small farmers helped by cooperative marketing networks, such as Rede Moinho.

MELIPONICULTURA
FUNDAÇÃO TERRA MIRIM

Fundacion Terra logo

Honey

FLYWAYS BRASIL: Bird Conservation Programme

Since 2015, Instituto Neoenergia has been developing the Flyways project, in partnership with SAVE Brasil, which seeks to ensure the conservation of limicultural birds and their habitats, contributing to the conservation of species at the hemispheric level.

Limous birds (from the Latin limus, meaning that they live in a muddy environment) are birds that are always found near water, occurring from the coast to the interior. Some species are migratory, others are resident. Of the 47 species in Brazil, 13 are resident, 4 are migrants from the south and 30 are migrants from the northern hemisphere. At least five of these species are on the Official National List of Endangered Species (MMA 2014, 2018).

SAVE Brazil

In the Flyways Brazil project, actions are taken to monitor the population of species in the north-east and south of Brazil. In the Northeast, an area of approximately 800 hectares is being monitored, a region that covers at least three municipalities in the State of Rio Grande do Norte.

The work also seeks to involve the local community to help preserve birds and increase awareness of their importance to the ecosystem.

SAVE Brazil is part of BirdLife International, an alliance of conservation organisations working in 110 countries.

SAVE Brazil

4.3.5 Mexico

Recovery project in the Garrapatas estuary in Altamira, Tamaulipas

"Objective: To reconstruct the mangrove ecosystem and keep it in suitable conditions for its characteristic wildlife"

The Garrapatas estuary was recovered by diverting water from the cooling towers at the Altamira III and V combined cycle power plant to the mangrove.

Work to restore this mangrove was carried out in coordination with the Centre for Research and Development of Port and Maritime Engineering (CIDIPORT), the Autonomous University of Tamaulipas, the organisation of Ecology and Environment Advisors (ASECMA) and the Comprehensive Port Administration of Altamira (API-ALT).

Following the work undertaken from 2003 to 2006, certain species of birds and reptiles have returned and the salinity level is found to be suitable, which means it is no longer necessary for seawater to be discharged exclusively into this ecosystem covering over 140 hectares. Currently, the required amount is discharged into the mangrove and the rest is discharged into the sea. The University of Tamaulipas and aiding

associations are conducting physical and chemical studies to monitor and ensure optimal conditions in the water.

Physical-chemical studies were performed during this time at the Garrapatas estuary to observe the salinity conditions of the water and the gradual change in the area's vegetation.

In 2019, work was carried out to monitor and analyse the parameters of the ecosystem with laboratory samples and we supported API-ALT with tests and basic materials to deal with the oil spill emergency that occurred in the mangrove after a spill from a burst pipeline owned by Petróleos Mexicanos (Pemex).

Preservation and recovery of the Estero Garrapatas

Project to support felines in the Altamira region

The project to support felines is an initiative involving the Iberdrola Mexico Foundation, the "Arturo Narro Siller" Faculty of Engineering of the Autonomous University of Tamaulipas, the City Council of Altamira Tamaulipas, Grupo Seisa, and the organisation of Ecology and Environment Advisors (ASECMA).

Its main purpose is to preserve specimens of jaguars, jaguarundis, ocelots and wild cats in the region by defining and delineating biological corridors to suit the habits and population size of these felines typically inhabiting the Altamira region.

In 2019, the jaguar, ocelot, jaguaundi and wild cat were sighted and samples were taken to learn about feline population dynamics.

Feline Support Project

Fernández Canyon Conservation Project

The Iberdrola Mexico Foundation, in alliance with Pronatura, the Durango Governmeny[17] and its Secretariat of Natural Resources and the Environment, signed a collaboration agreement in 2019 to undertake conservation work in the Fernández Canyon, one of the most important nature reserves in northern Mexico.

The goal of the project is to restore the State Park of Fernández Canyon, this being one of the most significant nature reserves in northern Mexico as it houses over 580 species of flora and fauna in a protected area of 17,000 hectares. The park had suffered from lack of control of recreational activities, the arrival of invasive species of plants and animals, erosion, overgrazing, and failure to secure the ecological water level of the river Nazas.

The plan includes ecologically restoring the thousand-year-old Montezuma cypress forests and riverside vegetation, controlling exotic invasive species and enabling the communities to

17 Iberdrola operates the La Laguna II Combined Cycle Power Plant in Durango

regulate the park's tourist activity.

A diagnosis for the ecological restoration of juniper forests and riparian vegetation was carried out in 2019.

Thousand-year-old Montezuma cypresses in the Fernández Canyon

4.3.6 International Corporate Volunteer Programme

Thanks to the Iberdrola Group's International Corporate Volunteer Programme, employees are collaborating with conservation organisations and vulnerable groups to take part in nature restoration and protection projects seeking to improve the environmental quality and lifestyle of the underprivileged people.

Iberdrola's International Corporate Volunteering Programme was founded in 2006 and has now grown into a global project that is aligned with the Group's values and sustainable management policy.

International Corporate Volunteer Programme

One of the most noteworthy global environmental care projects undertaken is:

- Volunteer Day. To celebrate International Volunteer Day in 2018 and 2019, more than 4,000 volunteers took part in 140 initiatives organised by Iberdrola in the main countries where the Group operates: Spain, the UK, the USA, Mexico, Brazil and Portugal. The company celebrates this event every year under the slogan "Together we'll build the world we want!", raising awareness of the fight against climate change and the need to care for the environment. Volunteers also take part in inclusiveness projects with vulnerable groups and raise awareness of the importance of diversity. More details of the initiatives carried out in each country can be found below.
- "Fight Against Climate Change" is an initiative to raise awareness towards this global issue among young people at schools in Spain, Mexico and Brazil. Since it began, it has reached over 17,200 girls and boys in more than 560 workshops conducted by Iberdrola Volunteers. In the UK, a training pack was designed for primary school teachers that was then used to train 100 teachers in western Scotland.

Spain

More than 800 volunteers took part in a total of 26 environment and nature care initiatives held in 2018 and 2019 all across Spain in collaboration with various conservation and vulnerable group organisations. Amongst these initiatives we can highlight the following:

- Reforestation and clearing of invasive species, helping to plant more than 2,500 trees and 2,100 plants. Work in this area involved Spain's 11th Tree Day, which allowed restoring the Biosphere Reserve of Urdaibai (Biscay) and thus pursue the "Iberdrola Forest" project; the "Forest of Life" project in Navarre; the reforestation of the dunes in Gavá (Barcelona); repopulation in Palmés Santa Comba de Naves (Orense); reforestation,

maintenance and adaptation of the Ermitorio de la Magdalena Nature Area (Castellón); reforestation, maintenance and adaptation work in Talamanca del Jarama (Madrid); and maintenance and reforestation work under the name "Reviving Fermoselle" in an area ravaged by fire in 2018 (Zamora).

2019 International Volunteer day in Zamora

- Clearing litter from nature areas. In 2018 and 2019, Iberdrola also joined the LIBERA campaign by SEO Birdlife and Ecoembes to collaboratively clear up "Littered Nature" at various locations across the country.
- Clearing up microplastics on the beach of La Patacona (Valencia) together with a group of school children to celebrate Ocean Day.

United Kingdom

240 ScottishPower professionals and more than 490 volunteers were involved in 2018 -2019 in a broad range of projects concerned with protecting and restoring natural capital such as:

- Helping Keep Scotland Beautiful and their Anchor Group @ErskineGarden in delivering the Upstream Battle: an initiative to protect our seas by removing litter on land, identifying main sources of litter, and working with communities to find local solutions to tackling litter and its impacts upon habitats and species.
- Supporting the work of Shropshire Wildlife Trust, one of 46 Wildlife Trusts, helping nature recover in Shropshire by creating an environment rich in wildlife through voluntary actions.
- Benefitting communities and helping NGOs to deliver local environmental initiatives and nature reserve volunteering.

Energy Network's Land & Planning Team building an Otter Holt at a Training Day held in partnership with Shropshire Wildlife Trust, England

Employees, family and friends support Keep Scotland Beautiful's Upstream Battle (River Clyde, near Glasgow, Scotland)

Offshore Environment Team conducted a beach clean near Lowestoft benefitting the communities around our East Anglia ONE windfarm

Offshore Environment Team volunteered at the RSPB Loch Lomond Nature Reserve and undertook vegetation clearance

United States

Avangrid employees were invited to take part in various initiatives such as helping to perform reforestation and adaptation work in green areas in Maine.

Avangrid volunteers

Brazil

In Brazil, more than 900 Neoenergia* professionals participated in initiatives in 2018 and 2019. These included cleaning up public spaces and environmentally significant areas such as the Ilhéus beach in Bahia and the Guarujá beach in São Paulo, and planting local species in Garanhuns (Pernambuco). Their work took place in 14 municipalities in 6 different states: Rio Grande do Norte, Pernambuco, Bahia, Rio de Janeiro, São Paulo and Paraná.

2019 International Volunteer day in Brazil

Mexico

In Mexico, over 340 employees from Iberdrola Mexico and a total of 1000 volunteers got involved in a score of activities relating to environmental awareness and recovery of natural areas in regions such as Altamira, Monterrey, Querétaro, Oaxaca and San Luis Potosí, which included planting almost 2000 trees.

Reforestation in Oaxaca, 2018

Special mention is made of the International Iberdrola Volunteer Day that took place on 28 September 2019, when hundreds of Good Samaritans joined in the activities organised at 10 Iberdrola facilities across the country. Their work involved reforestation, designing and creating pollinator gardens, and cleaning up beaches and estuaries.

4.4 Awareness and communication

We are committed to raise awareness and spread information about the importance of biodiversity, and to tell everyone inside and outside the company about the impact of our activities and what we do to preserve biodiversity

4.4.1 Training and awareness-raising

A total of 36,469 hours of environmental training were imparted to employees, as well as an annual circular economy awareness campaign targeting all Iberdrola Group employees.

As far as training programmes are concerned, it is important to mention that training was given to wind farm officials about the environment that surrounds them (identifying protected species of plants and animals), how to monitor environmental factors at the facility, and what to do in the event of incidents involving wildlife.

Spain

Employees receive ongoing training on the environment and biodiversity in line with our commitment to meet the requirements for the Environmental Management Systems certificate awarded to Iberdrola under ISO 14001:2015. The company has put mechanisms in place to ensure all employees are given suitable environmental training according to their post by providing specific programmes for each business area.

In 2019, a mandatory on-line environmental awareness course was launched for our almost 10,000 employees.

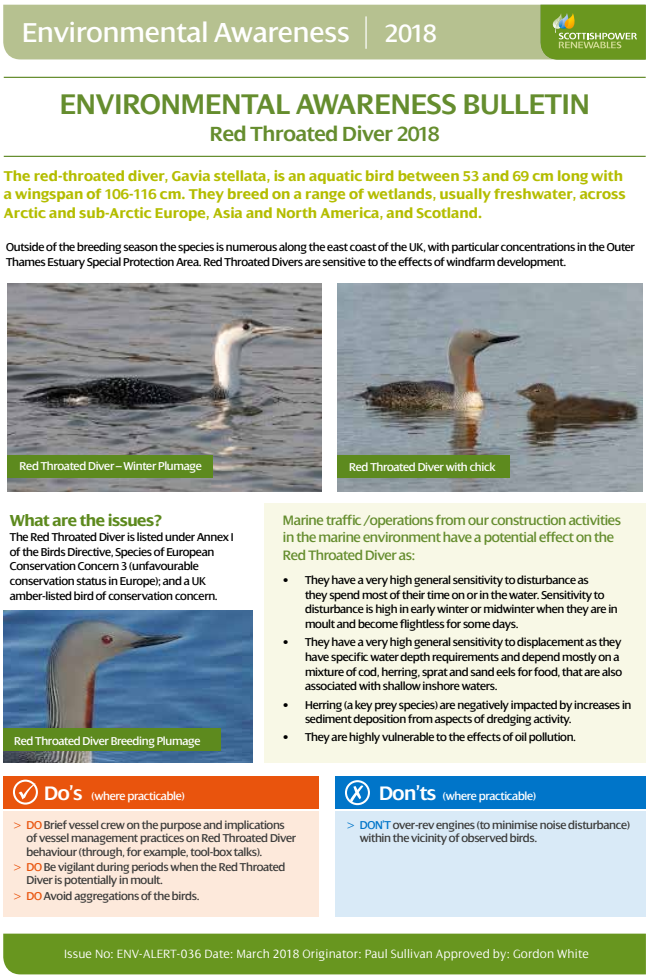
Environmental Awareness E-learning course

We also organised environmental emergency drills and specific environmental training programmes for contractors.

United Kingdom

ScottishPower have a continuing commitment to training and personal development for employees, contractors and other stakeholder with a focus on environmental regulatory compliance and continual environmental performance improvements. ScottishPower work alongside ecological and environmental specialists from government agencies, partnerships and NGOs to build knowledge and increase leadership capacity through different platforms including e-learning, interactive workshops, environmental bulletins and alerts.

- Energy Networks deliver a comprehensive annual environmental training programme for employees to raise awareness of the critical role which the environment plays in decision making across the business including carbon management, environmental legislation, waste management and pollution prevention. This builds a strong foundation of learning of the environmental impacts and risks in relation to construction and operational activities, ensuring that everyone, no matter their role within the business, considers and understands the environment in their actions. Guest speakers from statutory bodies such as Scotland's Environmental Regulator, industry experts and leading practitioners bring specialist, technical knowledge and expertise to this shared, learning experience.
- The Offshore Environmental Team are dedicated to sharing knowledge and best practice on marine ecological issues across the offshore projects, engaging with internal and external stakeholders globally. Toolbox talk are commonly shared with projects on biodiversity risks, such as red throated divers in the UK. The Offshore Environment Team also provide Environmental Compliance Bulletins which set out the statutory requirements and measures for environmental protection and highlights key lines of action to prevent environmental harm such as spread of potentially invasive species.



Environmental Awareness | 2018

SCOTTISHPOWER RENEWABLES

ENVIRONMENTAL AWARENESS BULLETIN

Red Throated Diver 2018

The red-throated diver, Gavia stellata, is an aquatic bird between 53 and 69 cm long with a wingspan of 106-116 cm. They breed on a range of wetlands, usually freshwater, across Arctic and sub-Arctic Europe, Asia and North America, and Scotland.

Outside of the breeding season the species is numerous along the east coast of the UK, with particular concentrations in the Outer Thames Estuary Special Protection Area. Red Throated Divers are sensitive to the effects of windfarm development.

Red Throated Diver – Winter Plumage

Red Throated Diver with chick

What are the issues?

The Red Throated Diver is listed under Annex I of the Birds Directive, Species of European Conservation Concern 3 (unfavourable conservation status in Europe); and a UK amber-listed bird of conservation concern.

Red Throated Diver Breeding Plumage

Marine traffic /operations from our construction activities in the marine environment have a potential effect on the Red Throated Diver as:

- They have a very high general sensitivity to disturbance as they spend most of their time on or in the water. Sensitivity to disturbance is high in early winter or midwinter when they are in moult and become flightless for some days.
- They have a very high general sensitivity to displacement as they have specific water depth requirements and depend mostly on a mixture of cod, herring, sprat and sand eels for food, that are also associated with shallow inshore waters.
- Herring (a key prey species) are negatively impacted by increases in sediment deposition from aspects of dredging activity.
- They are highly vulnerable to the effects of oil pollution.

Do's (where practicable)

> DO Brief vessel crew on the purpose and implications of vessel management practices on Red Throated Diver behaviour (through, for example, tool-box talks).
> DO Be vigilant during periods when the Red Throated Diver is potentially in moult.
> DO Avoid aggregations of the birds.

Don'ts (where practicable)

> DON'T over-rev engines (to minimise noise disturbance) within the vicinity of observed birds.

Issue No: ENV-ALERT-036 Date: March 2018 Originator: Paul Sullivan Approved by: Gordon White

Boletín Buenas Prácticas

- The Onshore Environment & Ecology Teams play a critical role in building knowledge and best practice by engaging with stakeholders like Forestry & Land Scotland, World Wide Fund for Nature and Scottish Government's Energy Consents Unit to showcase work on peatland and habitat restoration and ecological research and monitoring. ScottishPower Renewables are helping to develop guidance and promote best practice for peatland management through knowledge exchange in collaboration with IUCN UK Peatland Programme.

IUCN National Committee United Kingdom

Peatland Programme

United States

Wildlife Awareness Training is completed annually by Avangrid Renewables operations personnel. Over 400 operations personnel completed Wildlife Awareness Training in 2019. Training topics include current wildlife laws/regulations, project-specific requirements and –species of concern identification, and wildlife data collection and reporting methods. Avangrid Renewables provides resources to operations personnel including species identification guides, posters, and additional training on-site or via webinar as needed.

Wildlife awareness training program

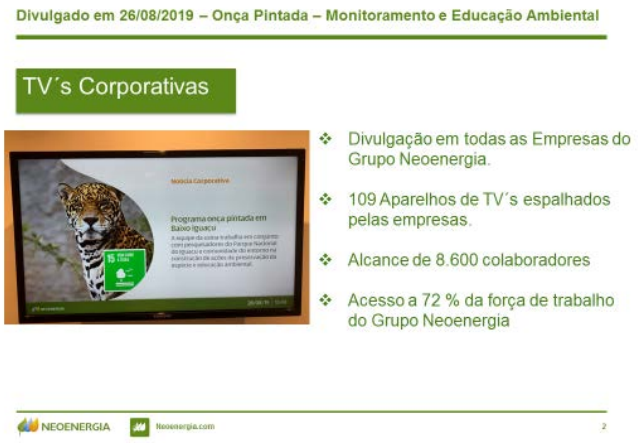
Brazil

Internal and external awareness campaign

Neoenergia has developed internal and external communication plans to provide science to stakeholders about the actions, projects and programmes developed by the Group's companies related to biodiversity.

These were posted on social networks, on the Group's website and also on different internal channels.

Our business areas also develop their social and environmental communication plans and programmes, directed to the communities around where we operate and also to our employees and contractors.



Yammer and Corporate TV

Onça Pintada - Environmental Awareness and Education

The Onça Pintada Programme, carried out by the Baixo Iguaçu hydroelectric power plant in the context of the environmental licensing process, aims to contribute to the scientific community and bodies responsible for managing the Iguaçu National Park (PNI) helping collect and disseminate information aimed at the conservation of the species.

The work was carried out in conjunction with researchers from the Iguaçu National Park (PNI) and the community around the Park, participating in the preparation of a map of the distribution of the jaguar, a product that enables the targeting of environmental education actions on properties with greater probability of animal movement, enhancing projects for conserving species in the region.

Panthera onca © Eric Kilby (CC BY-SA 2.0)

Meeting at the Iguaçu National Park Base, in Capanema

Semi-structured interview with local residents

Campaign to avoid burning under power lines at Celpe

In order to mitigate the negative effects of burning in sugarcane fields, the Companhia Energética de Pernambuco (CELPE) in partnership with the Companhia Hidroelétrica do São Francisco (CHESF), the Brazilian Institute of Environment and Natural Resources (IBAMA), the State Environment Agency (CPRH), the Sugar and Alcohol Industry Union (SINDAÇUCAR) and the Association of Cane Suppliers of the State of Pernambuco (AFCP), created a Working Group to promote joint actions of information and awareness of farmers, agricultural industries and communities around sugar cane plantations in the State of Pernambuco.

This action, in addition to minimising interruptions in energy supply, contributes to minimising the practices of burning sugar cane fields in the state of Pernambuco, thus contributing to minimise the potential impacts on animals and plants in these regions.

The effectiveness of this campaign works widely through environmental education projects and has managed to reach a considerable portion of the population in areas where sugar cane fields are burnt. The communication strategy involves, in addition to actions related to technical visits, workshops and lectures, and a booklet on environmental education on fire control distributed as part of the campaign.

Training

The Neoenergia Wind Farms installation projects develop training projects together with the communities surrounding our projects, such as the Training Course for rural community leaders and teachers as environmental multiplier agents in the project's areas of influence.

Mexico

The power plants have annual training plans in which they schedule staff courses. During 2018 and 2019, 7,541 hours of environmental training were taught.

Environmental training and awareness programmes were also organised for construction projects accounting for 77 hours altogether for both employees and contractors at the Combined cycle power plants of Topolobampo II and III, El Carmen and Escobedo, which included a specific section on biodiversity protection, with talks teaching them how to care for and handle wildlife, as well as information panels.

Over 140 hours of training were taught at the wind farms, which involved teaching in-house staff about the impact of our work on the environment, with a special focus on monitoring birds and chiropters.

4.4.2 Prizes

Spain

Iberdrola was granted the Spanish version of the **2018 European Business Award** for the Environment organised by the European Commission, which was handed by the King of Spain.

Iberdrola has won this award in the big company category for its new environmental management system, which incorporates calculations for its corporate environmental footprint and integrates the Sustainable Development Goals.

United Kingdom

ScottishPower Energy Network's Environmental Planning Team won the Royal Town Planning Institute Award for Planning Excellence in the Natural Environment in recognition of a truly innovative and impressive landscape mitigation project involving community engagement and collaborative working in relation to the 'Stirling Corridor' complementary to the 400kV Beauly to Denny Overhead line. The partners included Scottish Government, Central Scotland Green Network Trust and Stirling Council who developed a bespoke programme to engage and empower local community groups.

Environmental Planning Team

Energy Networks also received an award from the Scottish Government for Quality in Planning, one of the Government's most prestigious awards which celebrate achievements in planning. The Award entitled Quality in Planning for People in relation to the innovative and partnership led Stirling Enhanced Landscape Mitigation Project. The Team were also finalists in the UK wide Planning Team of the year category.

Landscape planning

Energy Networks' innovative and ambitious initiative called, Green Economy Fund which offers up to £20 million to support environmental and other sustainable projects that will benefit the people of Scotland. This Fund won industry wide recognition at the Scottish Green Energy Awards with an 'Outstanding Project' award.

United States

Annual awards for the Wildlife Protection Program to recognize the outstanding achievement of a field technician and an operating plant that demonstrated exceptional performance in implementing the Wildlife Monitoring and Reporting System and exemplified the spirit and intent of the Wildlife Protection Program.

Mexico

Iberdrola Mexico's thermal power plants are included in the National Environment Audit Programme (PNAA) run by PROFEPA. This voluntary programme aims to acknowledge companies that achieve ongoing improvements in their environmental performance and are committed to preserving the environment.

The power plants that received the Clean Industry certificate in 2019 were: Dulces Nombres (Level 2), Baja California III (Level 2) and the Altamira Cogeneration Plant (Level 1).

This certification shows just how committed these facilities are to complying with Iberdrola Mexico's environmental policy.

Staff from the Dulces Nombres plant with their Level 2 Clean Industry certificate

Annex I - Additional information on actions

Wildlife Monitoring and Research Programmes

Migra Project Publications

Wildlife Monitoring and Research Programmes

Hidroelectric Power Generation

Fauna Research and Monitoring Programmes

In general, the Fauna Monitoring programmes aim to generate information that allows the evaluation of changes in the structure, distribution, abundance, biology and ecology of the species that occupy the surroundings of our facilities, providing fundamental information for the adoption of strategies that minimise impacts and to promote the improvement of environmental quality in the regions where the projects are located.

Among these programmes are studies and monitoring of ichthyofauna, avifauna, herpetofauna, entomofauna bioindicadors, mastofauna, chirofauna, as well as genetic research and conservation programmes.

Baixo Iguaçu Hydroelectric Power Plant

«Technology at the Service of Species Conservation»

Species Conservation

Igaçu long-whiskered catfish

- The Baixo Iguaçu plant team, in the development of its environmental programmes, is using technology at the service of conservation of endemic species of the region, in the case of fish popularly known as "**Surubim-do-Iguaçu**" (Igaçu long-whiskered catfish or *Steindachneridion melanodermatum*). Through capture and marking with combined telemetry transmitters, the monitoring of the movement habits of the species is performed through the fixed and mobile monitoring bases installed along the river basin.
- To date, biologists have marked 50 individuals, who have already begun to provide relevant information related to the migratory behaviour of species in the study region.
- The Programme will provide relevant information that can be used to guide specific Igaçu long-whiskered catfish conservation projects, currently classified as "In Danger" on the Ministry of the Environment's List of Threatened Species.

"Surubim-do-Iguaçu" (*Steindachneridion melanodermatum*)

William´s toadhead turtle (*Phrynops williamsi)*

- The Baixo Iguaçu Plant team is using technology to monitor the impacts of the installation and operation of its project on local fauna species. The objective of the programme is to verify if the implementation of the dam interferes with the reproductive cycle of the William´s toadhead turtle (*Phrynops williamsi*).
- The captured adult females are fitted with a radio transmitter that allows satellite monitoring of their movements, identifying their feeding and reproductive habits, mainly the sites used for the spawning of the species.
- This monitoring will be used to define the best strategy to minimise the impacts on the population of these animals in the area surrounding the reservoir of the Baixo Iguaçu hydroelectric power plant.

William´s toadhead turtle (*Phrynops williamsi)*

Avifauna

- The region around the Baixo Iguaçu hydroelectric power plant has a great wealth of birds. During the monitoring work more than 200 bird species have already been recorded according to data collected by field teams. Each monitoring campaign registers new species, indicating that an increase in the sample effort will result in an increase in the list of bird records for the region around the project
- The teams of biologists of the Baixo Iguazú hydroelectric power plant have registered two endangered species on the list of the state of Paraná: *Spizaetus melanoleucus* (black-and-white hawk-eagle) categorised as endangered and *Primolius maracanã* (blue-winged macaw) also categorised as endangered on the regional list and classified as near threatened on the national and global list

Black-and-White Hawk-Eagle (*Spizaetus melanoleucus*)

Blue-Winged Macaw (*Primolius maracana*)

Otter Monitoring Programme (*Lontra longicaudis*)

- The Baixo Iguaçu team of biologists monitors the populations of neotropical otter (*Lontra longicaudis*) in the area of influence of the project. This programme aims to identify if these populations are being affected by the implementation and operation of the project, providing important information that will guide the strategies of fauna conservation in the region.
- Photographic traps were installed near the burrows used by the animals in the area of direct and indirect influence of the project, which allowed recording and monitoring of the populations of neotropical otter (*Lontra longicaudis*).
- This action reinforces the Group's commitment to the conservation of biodiversity and the mitigation of the environmental impacts of its facilities.

Neotropical otter (*Lontra longicaudis)*

Herpetofauna Monitoring Programme

- Herpetofauna is a group that includes reptiles and amphibians and they have been monitored by the Baixo Iguaçu plant's team of biologists to verify possible changes in the composition of the species in the project's area of influence
- The team monitors the species with the help of methodologies that use interception and fall traps (Pitffals Trap) and also with direct observations (active and auditory search from the vocalisation of amphibians). The captured animals receive a marking that allows biologists to better understand the dynamics of the populations living around the project.
- After marking, the animals undergo a measuring and photographic recording procedure before being returned to the wild.

Micrurus altirostris

Dipsas bucéfala

Biometrics

Chiropter Monitoring Programme

- Chiropters are considered to be excellent bioindicators of the environmental quality of natural environments and thus, after the registration of chiropter species and populations, the environmental impacts of the study areas can be identified.
- The Baixo Iguaçu plant's team of biologists has been monitoring chiropter species to verify the environmental quality of the area of influence of the project, contributing to the increase of knowledge about the occurrence of species in the region.

UHE Baixo Iguaçú - Paraná

Teles Pires hydroelectric power plant

Primate Monitoring - a new kind of titi monkey

- A new type of titi monkey was discovered as a result of the Primate Monitoring Programme at the Teles Pires hydroelectric power plant. The activities of this programme contributed to a sequence of studies that led to the description of the new primate species, named *Plecturocebus grovesi*, in honour of the British professor Colin Groves, one of the greatest authorities in primate taxonomy.
- The discovery brings to light a primate species until then unknown, but already classified as Critically Endangered in the IUCN (International Union for Conservation of Nature). According to researchers, conservation measures are needed to safeguard the future of this newly discovered and already critically endangered primate.

Nueva especie de primate descrita y descubierta en la región: *Plecturocebus grovesi*

Zogue-zogue (*Plecturocebus sp*)

Monitoring of land mammals

- In order to monitor small, medium and large mammals, the Programme evaluated possible changes in the communities of these animals before, during and after the implementation of our projects.
- At the Teles Pires hydroelectric power plant, after 19 monitoring campaigns, 23 small species (rodents and marsupials) and 35 medium and large species were recorded, including 11 species that are on the Ministry of the Environment's endangered fauna list: *Myrmecophaga tridactyla* (giant anteater), *Panthera onca* (jaguar), *Priodontes maximus* (giant armadillo) and *Speothos venaticus* (bush dog).
- It was noted that none of the main terrestrial populations suffered significant impact with the implantation of the plant, having been registered important species after the formation of the reservoir.

Giant Armadillo (*Priodontes maximus*)

Myrmecophaga tridactyla

Tapir (*Tapirus terrestris*)

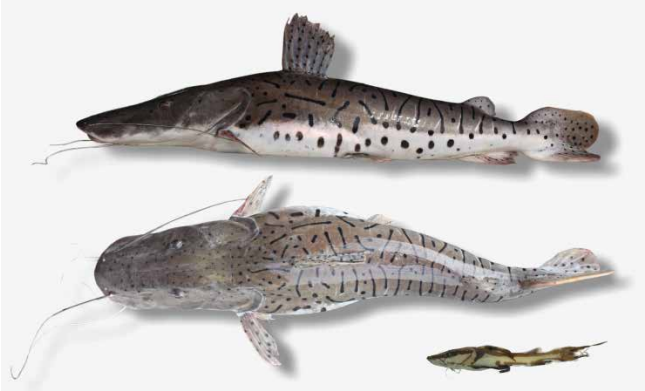
Subprogramme - Fish Migration and Biotelemetry

- This sub-programme was developed to mark and analyse the data of fish traced through fixed bases and mobile tracking in order to define the migration routes of long distance migratory species.
- After the reservoir was filled, 192 fish of the species piraíba catfish, bared catfish, gilded catfish, streaked prochilod and matrinchã were marked with radiotelemetric transmitters and released upstream of the plant. Approximately 87% of the fish were detected in searches. Of this total, 22.9% of the fish moved downstream only, 20.2% upstream only and 27.6% moved both ways.
- This information is important for defining the best conservation strategies for each of the species and for the effective mitigation of any impacts that may be identified on the populations of these species.

Gilded Catfish (Zungaro zungaro)

Streaked Prochilod *(Prochilodus nigricans)*

Matrinchã *(Brycon falcatus)*



Pseudoplatystoma punctifer

Herpetofauna Monitoring

- The monitoring of herpetofauna - a group of reptiles and amphibians from a region - observed in the last two campaigns, the registration of two species of reptiles (the lizard Norops ortonii and the scorpion mud turtle Knosternon scorpioides) and two species of amphibians (Scinax fuscovarius and Leptodactylus wagneri) that had not yet been counted during all the monitoring.
- Considering the results obtained up to the 17th quarterly herpetofauna monitoring campaign, the species richness in the study area came to 76 amphibian species and 93 reptile species.

Osteocephalus elkejungingerae

Epicrates cenchria

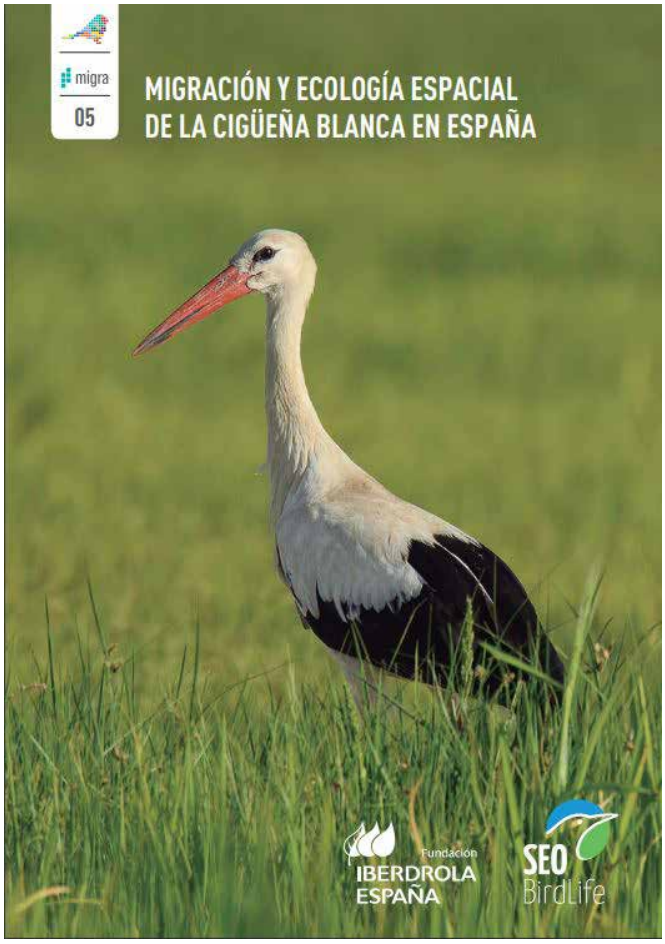
Iguana iguana

Migra Project Publications

November 2019 saw the publication of the monograph on Migration and Spatial Ecology of the Spanish population of Bulwer's Petrel, this being the fourth paper published in this programme. Bulwer's Petrel is a small seabird that nests in the Canary Islands and is catalogued as endangered, since only an estimated 1,000 breeding pairs remain in Spain. Knowing the current distribution of these populations will help, amongst other things, to draw up a model of the effect of global warming on the species, since tropical birds will be the first to suffer the impact of climate change.

The Migration and Spatial Ecology of White Storks, in Spain was published in February 2020. This thorough publication is the result of seven years of work, revealing the movements of white storks throughout the year: their breeding and wintering grounds and migrations between the two. This paper, the fifth produced as part of the MIGRA programme, shows a clear change in the migratory strategy of white storks in Western Europe. In fact, white storks have proven to be the ideal model to demonstrate that changes caused by humans on a global level (production of large amounts of waste, large expanses dedicated to irrigated crops, etc.) are causing profound transformations in the environment and the way species behave.

The publication presents the results of a project that saw 79 white storks fitted with remote tracking devices, of which 53 were tagged in Spain and 26 were tagged in Central Europe (24 in Switzerland, one in France and one in Germany) between 2012 and 2017. The GPS data show that current wintering areas for the Spanish adult white stork population are mostly located within Spain. The number of sedentary birds has increased significantly and migration distances have shortened. Furthermore, a significant proportion of Western European storks fly to Spain in Autumn.



The MIGRA programme by SEO/Birdlife has also published a monograph on Audouin's gull, a species native to the Mediterranean with a relatively small population, 90% of which can be found in Spain during their reproductive season.

The study on Migration and Spatial Ecology of Audouin's Gull in the western Mediterranean and the north-west of Africa involved analysing 221,931 spatial locations visited by more than 15,500 different specimens. Its 100 pages contain the movements, phenology and spatial ecology of Audouin's gull at breeding grounds, on migratory routes and in wintering areas. The study also reveals 15 areas of great value for the species on the African coasts that deserve to be identified as Important Bird Areas (IBA).

IBERDROLA
BIODIVERSITY