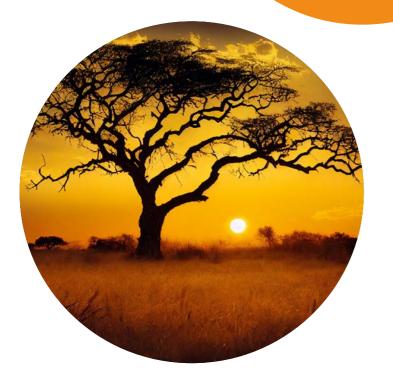
# **BIODIVERSITY** Report 2022





# Iberdrola and biodiversity



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# **G** WE PROTECT **BIODIVERSITY** OF ECOSYSTEMS AS A SOURCE OF SUSTAINABLE DEVELOPMENT

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Report BIODIVERSITY / 2022 Miberdrola



## Ignacio S. Galán

### Chairman of Iberdrola

Today, humanity faces major global challenges in the social, economic and, especially, environmental dimensions. We are all aware that the fight against climate change, the conservation of natural resources and the protection of biodiversity are urgent, and if we do not address these issues in an imminent and collaborative manner, we will not be able to achieve a truly sustainable and livable world for all, a world more energetically self-sufficient.

Decades ago, Iberdrola made a firm commitment to the environment, focusing its activity on building an energy model in harmony with nature and with human beings which is competitive, resilient and a source of sustainable development. In short, one that create value without compromising the future of new generations.

It is precisely this latter responsibility that has led us to intensify our efforts to preserve and restore ecosystems and species. We cannot forget that nature is the basis of our economy and that without a robust, healthy and functional environment, our well-being and progress would be compromised. Iberdrola made a firm commitment to the environment, focusing its activity on building an energy model in harmony with nature and with human beings which is competitive, resilient and a source of sustainable development

We have fully integrated biodiversity conservation into our strategy, demonstrating that it is possible to effectively combine generation and supply of reliable energy to homes and industries with the promotion of balanced ecosystem and species diversity.

And now we are going even further. Assuming a more ambitious environmental vocation, we have presented our *Biodiversity Plan 2030* through which we are committed to generate a net positive impact on the environment. A roadmap which is detailed in this report, together with an analysis of all the actions we have carried out to safeguard nature in recent years from our different businesses, in all the regions where we are present.

Among these initiatives, it is worth mentioning Iberdrola's participation in the United Nations Biodiversity Conference (COP 15) in Montreal where, together with governments, companies and organizations, scenarios are discussed and set to transform society's relationship with biodiversity and ensure that, by 2050, the shared vision of coexisting with nature is achieved.

We have a moral obligation to leave a sustainable world and full of opportunities for future generations, and at lberdrola we are increasingly committed to this.

Ignacio S. Galán Chairman of IBERDROLA



# Introduction

www.iberdrola.com

IBERDROLA

1.1. The Energy company of the future

- **1.2**. The biodiversity crisis in the spotlight
- **1.3**. Action for biodiversity on the international agenda

This report presents the approach to biodiversity management in the Iberdrola group, the interactions of its activities with biodiversity and the actions in terms of conservation, improvement of knowledge, collaborations with interest groups and awareness-raising carried out in 2020 and 2021.

Iberdrola published this Biodiversity Report 2022 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 2021.

### **1.1.** The utility of the future

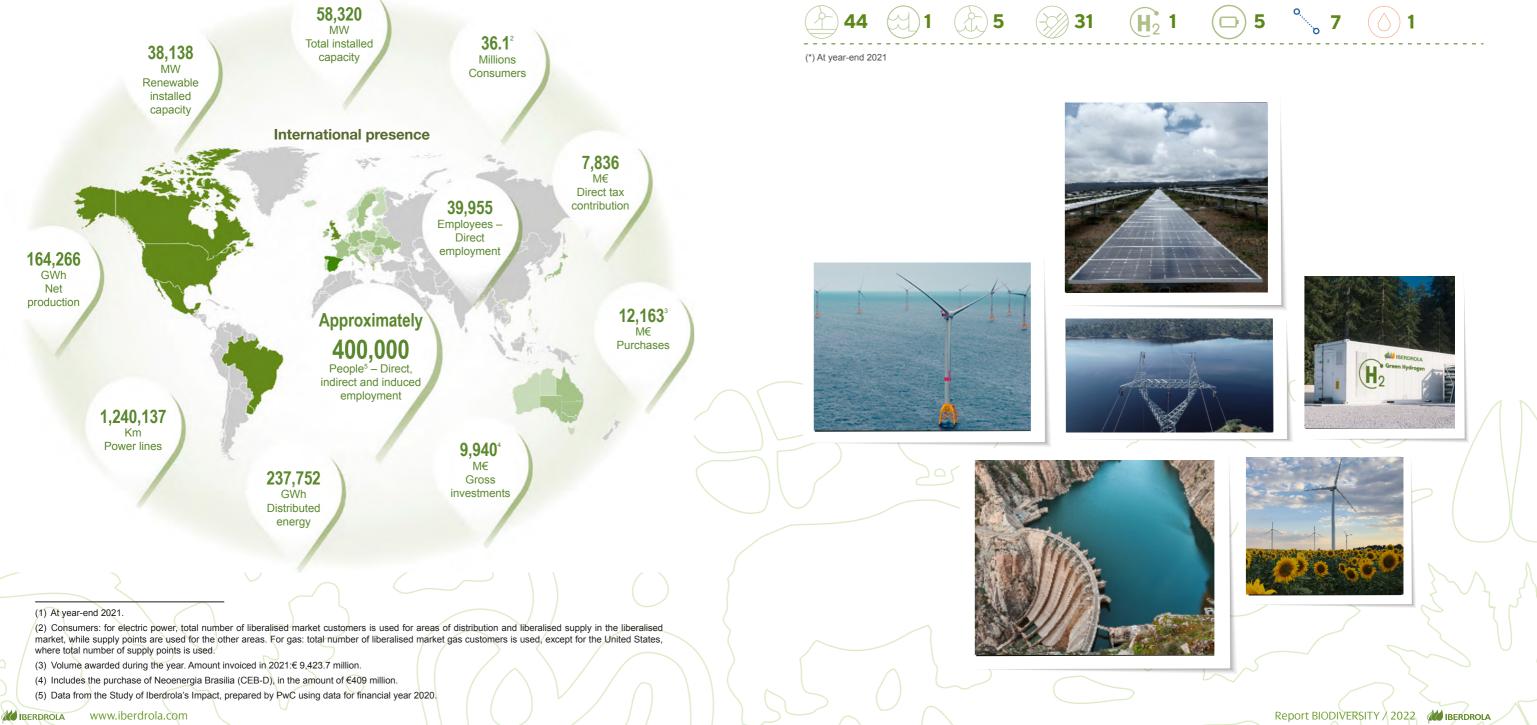
### What we are

With over 170 years of history behind us, Iberdrola is now a global energy leader and one of the world's biggest electricity utilities in terms of market capitalisation<sup>1</sup>. For two decades Iberdrola has advanced work on the energy transition to combat climate change and offer a sustainable and competitive business model that creates value in the territories in which the company operates. The group supplies energy to around 100 million people in dozens of countries, employs around 40,000 people and has assets worth more than €140 billion.

### Main figures of the Group Iberdrola

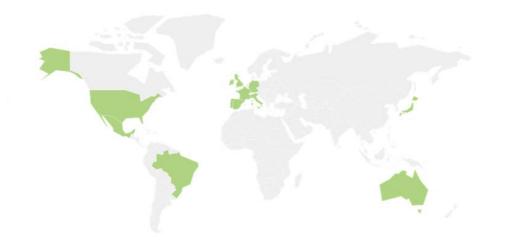


### Projects under construction

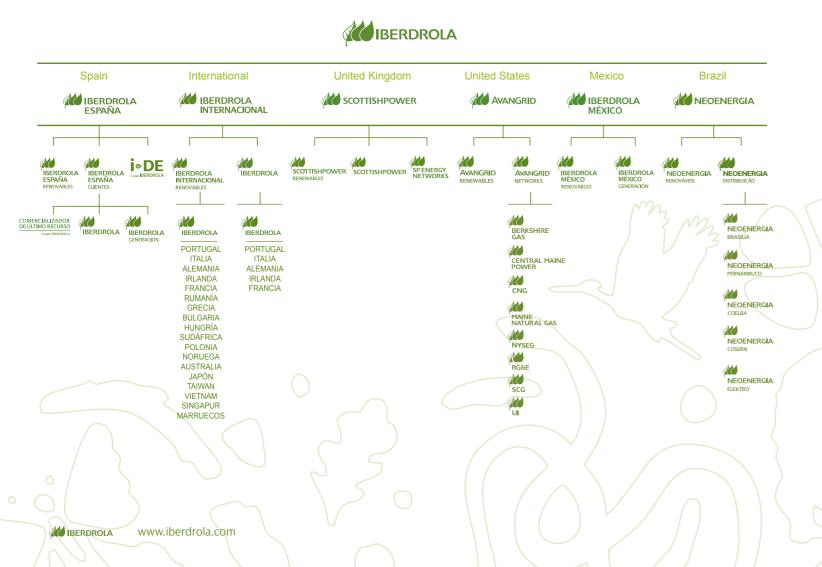


### International presence

The Iberdrola group operates in multiple countries, focusing its activity on six regions: Spain, the UK, the US, Brazil, Mexico and International which includes, among other countries: Australia, Germany, Portugal, France, Italy, Ireland and Japan.



The Iberdrola brands with the greatest operational presence and in markets in each country, operational by the end of 2021, are shown below:



### **1.2.** The biodiversity crisis in the spotlight

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 **genetic diversity** (within species), diversity between **species** and diversity of **ecosystems**.

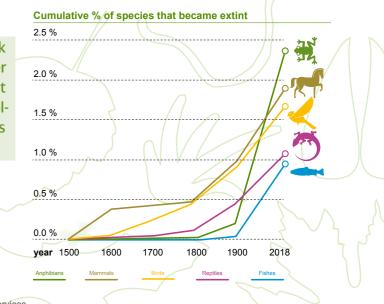
Over recent decades, human beings have introduced unprecedented changes in ecosystems to satisfy an ever-growing demand for food, water, raw materials and energy. This has resulted in a loss of biodiversity and the deterioration of ecosystems, which is a source of increasing concern worldwide. According to the IPBES<sup>6</sup>, around a million<sup>7</sup> 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 (starting with those with the most impact): changes in land and sea use, direct exploitation of organisms, climate change, pollution, and invasion of alien species<sup>7</sup>. 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, there are an enormous amount of strictly social or economic goods and services provided by the ecosystems are lost or deteriorated. Biodiversity ensures 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 to be lost.

The biodiversity crisis, with a million species at risk of extinction, may put the human species 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).

6 The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.
7 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 (eds). IPBES secretariat, Bonn, Germany. http://bit.ly/IPBESReport.



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Source: World Economic Forum Global Risks Perception Survey 2021-2022

According to the World Economic Forum's 2022 report, biodiversity loss is one of the three most serious risks facing the planet over the next decade, along with failure of climate action and extreme weather events.

Moreover, these three risks are interdependent. Biodiversity loss and climate change are two closely related crises. The climate crisis has a direct and severe impact on biodiversity. Climate change increases the fragility of ecosystems and intensifies the effects of other drivers of biodiversity decline. On the other hand, biodiversity conservation and nature-based solutions are our best strategy to fight against climate change.

Businesses are more dependent on nature than previously thought. More than half of the world's GDP, 44 trillion dollars of economic value, is at moderate or severe risk due to the loss of nature according to *The New Nature Economy Report*<sup>8</sup> of the World Economic Forum.

"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 can be found in nature*": CBD

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*"<sup>9</sup>.



8 2020 - The New Nature Economy Report. Foro Económico Mundial.
 <u>https://www3.weforum.org/docs/WEF\_The\_Future\_Of\_Nature\_And\_Business\_2020.pdf</u>
 9 TEEB (2012), The Economics of Ecosystems and Biodiversity in Business and Enterprise. Edited by Joshua Bishop. Earthscan: London and New York.

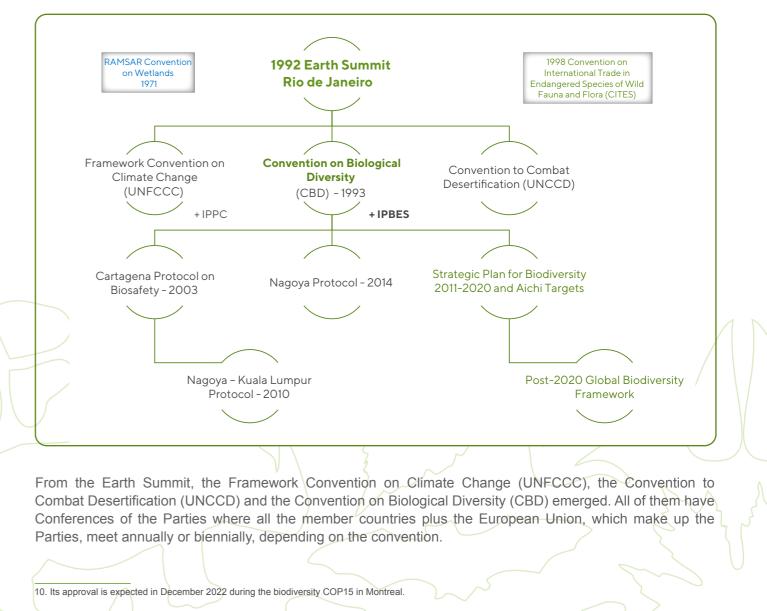
### 1.3. Action for biodiversity on the international agenda

The last two years have seen an increase in frameworks, strategies, regulations and initiatives aimed at accelerating action against the loss of biodiversity and the decline of nature. The proposal still under negotiation for the new Global Biodiversity Framework<sup>10</sup> (GBF), the European Biodiversity Strategy 2030, the European Green Deal and the Sustainable Finance Action Plan, and the Corporate Sustainability Reporting Directive (CSRD) are examples of these.

Other initiatives such as the Science Based Targets for Nature (SBTN) or TaskForce on Nature-Related Financial Disclosure (TNFD) are also creating frameworks to help companies and financial institutions integrate nature into their decision-making processes. The TNFD, building on the existing Climate Framework (TCFD), is working on developing a framework for the management and disclosure of nature-related risks and opportunities to drive business and financial sector transparency with respect to the impacts and dependencies they have on nature.

### Convention on Biological Diversity (CBD)

International action for preserving the variety of life on Earth is based on the Convention on Biological Diversity (CBD) signed by over 195 countries after the Earth Summit in Rio de Janeiro in 1992.



### 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. The Strategic Plan established 5 strategic objectives and 20 targets, known as the Aichi Targets. Unfortunately, the fifth Global Biodiversity Outlook (GBO-5) report, published by the Convention on Biological Diversity (CBD), shows that in 10 years, none of the 20 Aichi Targets have been achieved and only six of the targets show partial achievement by the 2020 deadline.

### New post-2020 Global Biodiversity Framework

Since the end of the decade, the CBD has been working on the negotiation of a new post-2020 Global Biodiversity Framework (GBF). Negotiations are expected to be finalised and the GBF will be adopted at the 15th Conference of the Parties to the United Nations Convention on Biological Diversity (COP15-CBD). After being postponed due to the COVID-19 pandemic, it has been divided into two parts: the first from 11 to 15 October 2021 in Kumming (China) and the second, in person in Montreal (Canada) from 7 to 19 December 2022.

The proposal<sup>11</sup> being negotiated under the new GBF for the first time includes a goal specifically aimed at the business sector that involves evaluating and reporting its impact on biodiversity, in addition to carrying out actions that reduce its impact. In addition, the GBF incorporates objectives, goals and far-reaching measures to bring about a transformation in society's relationship with biodiversity and to ensure that by 2050 the shared vision of "living in harmony with nature" is realised.

What are the key elements for the post-2020 Framework for Business? The current draft of the Post-2020 Framework includes:



What are the key elements for the post-2020 Framework for Business?



Source: Business For Nature

### 2030 Agenda

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

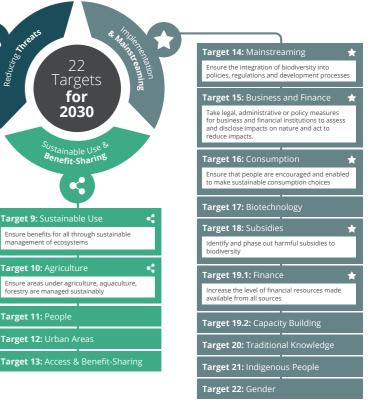
Natural capital reserves and ecosystem services provide the basis for all human activities, which is why achieving SDG 6 (Clean water and sanitation), SDG 13 (Climate action), SDG 14 (Life under water) and SDG 15 (Life on land) is necessary to achieve the rest.

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

BIOSPHERE 15 Sine H Silver

"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."

© Azote Images for Stockholm Resilience Centre, Stockholm University



### agenda. Each goal has



### Legislative framework of the European Commission

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 sets out an ambitious path to reorient capital flows towards a sustainable economy. Its framework includes the **Sustainable Finance Action Plan**, in which biodiversity is an essential axis of the taxonomy of sustainable activities; the ambitious **Biodiversity Strategy 2030** and its commitment to protect and restore biodiversity by 2030; and far-reaching legislation on the disclosure of information related to aspects related to sustainability for both companies and the financial sector.

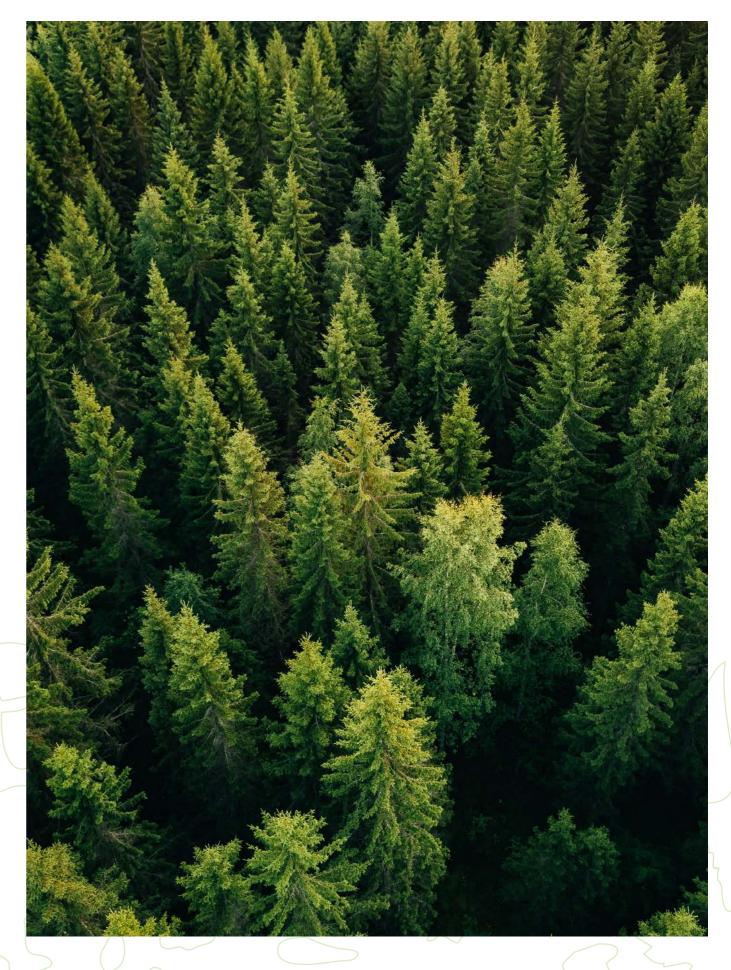
This **European Biodiversity Strategy 2030** addresses the key factors that have led to biodiversity loss, such as unsustainable use of land and sea, overexploitation of natural resources, pollution, and invasive alien species. The strategy proposes, among other things, defining binding targets to regenerate 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.

In addition, the commission has presented two legislative proposals to stop and reverse the loss of ecosystems, namely:

- the Proposal for a Regulation of the European Parliament and of the Council on Nature Restoration setting the overall target of restoring 20% of the EU's land and sea surface by 2030 and all ecosystems needing restoration by 2050;
- **Proposed deforestation-free products rule** to combat deforestation by placing limitations on the supply chain of commodities associated with high deforestation risk, such as soybeans, beef, palm oil or coffee.

This strategy presents the Commission's position toward the United Nations framework on biodiversity, which is in the process of negotiation in the second part of the Conference of the Parties to the Convention on Biological Diversity 2022.

"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 building an energy model in harmony with nature and human beings as a source of sustainable development, in line with the UN Sustainable Development Goals, an integral part of its strategy."





# Iberdrola and action for biodiversity

"At the Iberdrola group we integrate the conservation and promotion of biodiversity into the company's strategy and we work on the development of an energy model that is in harmony with nature and humankind as a source of sustainable development"

- 2.1. Iberdrola with nature and humankind
- 2.2. 2030 Biodiversity Plan
- 2.3. Governance and integration in management
- 2.4. Action on drivers of biodiversity loss

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### 2.1. Iberdrola with nature and humankind

### Vision: build an energy model in harmony with nature and humankind

The preservation of nature and the well-being of people are priority elements for Iberdrola in determining its entire business strategy and business model. Therefore, in a scenario characterised by strong growth in global energy demand, Iberdrola works to build an energy model in harmony with nature and humankind as a source of sustainable development.

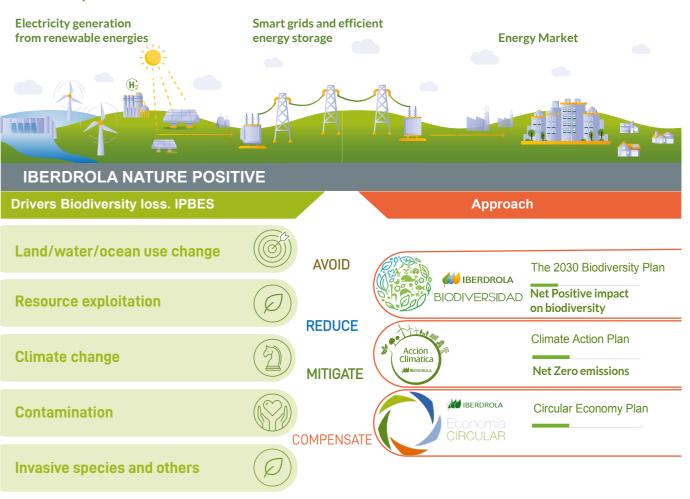
For more than two decades, Iberdrola's business activity has been guided by the principles of preservation, care and protection of the environment as a lever to ensure its own survival and well-being, and that of other living beings. In recent years, the ensuing environmental crisis, together with the growing energy demand, have exacerbated the need for a new energy model based on the use of renewable energy, on the development of smart grids and efficient energy storage, and on the drive towards electrification of the demand as vectors of a competitive and efficient decarbonisation. In addition to these characteristics, in all activities and processes the model must integrate the conservation and promotion of biodiversity, as well as the sustainable use of resources. The Iberdrola group continues to work on the transition towards this new energy model that simultaneously guarantees sustainable development, taking into account the well-being of people and respect for nature.

Conscious of the location of our infrastructures and their interaction with the territory, and to guarantee the success of the group's commitment to carry out its activity in harmony with nature. Iberdrola is working on a roadmap which addresses the five drivers of biodiversity loss identified by IPBES in their 2019 report<sup>12</sup>.



12/2019. 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, http://bit.ly/IPBESReport

### Roadmap - Iberdrola Nature Positive



This "Iberdrola Nature Positive" roadmap is made up of:

- the change in land use, the direct impact on species and ecosystems and invasive species.
- and the fight against climate change.
- increasing the life of its assets and reducing the use of raw materials and the generation of waste.

The approach to the drivers of biodiversity loss is complemented by the principle of pollution prevention already integrated into its management, as reflected in its Environmental Policy and the group's global environmental management system.

 2030 Biodiversity Plan that establishes the strategy, objectives and programmes to address the impacts on Climate Action Plan that establishes the strategy, work plans and objectives for the reduction of emissions

Circular Economy Plan that establishes the lines of work to integrate the sustainable use of resources,

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### 2.2. 2030 Biodiversity Plan

At Iberdrola we have strengthened our commitment to nature and we have set ourselves the goal of having a net positive impact on biodiversity by the year 2030, i.e., by this year our activities will have contributed to the preservation and improvement of biodiversity. In order to achieve this ambitious goal, Iberdrola has launched the 2030 Biodiversity Plan (the "Plan"), applicable to all facilities and activities of the Iberdrola group.

### **66** Target 2030: Have a net positive impact on biodiversity.

This objective considers the direct impacts on threatened species and high-value ecosystems derived from the activities of the Iberdrola group throughout the life cycle of its facilities and is based on the application of the conservation hierarchy principle, as well as in the implementation of mechanisms for the identification and quantification of impacts and monitoring of compliance.

The 2030 Biodiversity Plan is a continuation of years of work on the protection and preservation of biodiversity, its integration into the strategic planning and decision-making of the group.

### Historic commitment with the Environment

### Commitment to no deforestation

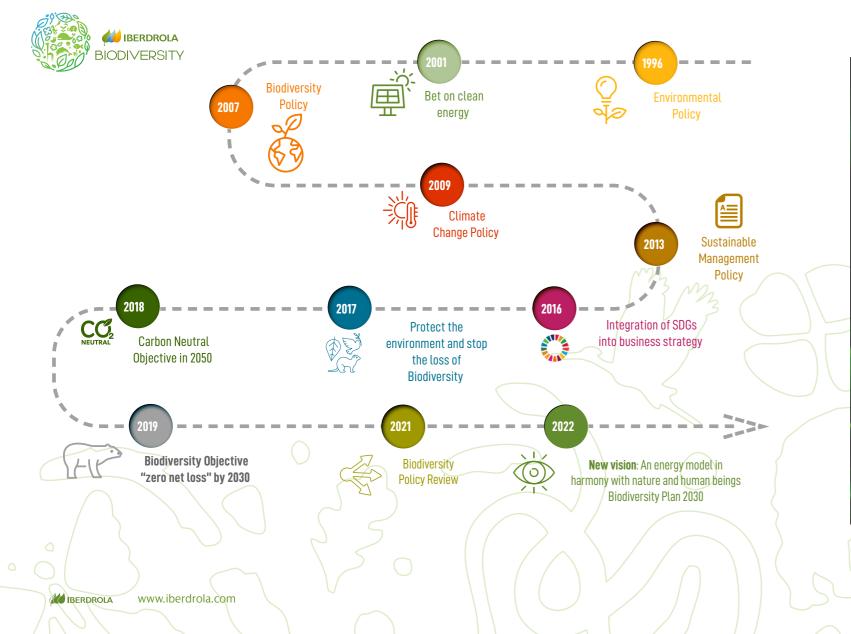
As part of the actions to achieve compliance with this goal by 2030, Iberdrola undertakes that its activity will not generate net deforestation by 2025. This commitment applies to both direct impacts and those derived from the group's supply chain.

### Iberdrola undertakes the no net deforestation by 2025

The commitments and procedures derived from this Plan are:

- (i) conservation hierarchy;
- (iii) application of solutions based on the preservation of nature; and
- (iv) involvement of the supply chain.

All of them, together with other measures, constitute adequate tools to guarantee the achievement of the Plan's objectives by 2030.





(ii) equal to equal compensation for impacts – i.e., with the same type of habitat and species affected;

### 2.3. Governance and integration in management

The Iberdrola group has integrated the conservation and promotion of biodiversity into the company's strategy and its operational management instruments:

### Biodiversity Policy

Iberdrola has had a *Biodiversity Policy* since 2007, which is part of its *Governance and Sustainability System*. In 2021, Iberdrola substantially modified the aforementioned *Biodiversity Policy* to define the principles of action that underpin the 2030 Biodiversity Plan and the sustainable and nature-positive business model.

The <u>Biodiversity Policy</u> demonstrates Iberdrola's commitment to combating the loss of biodiversity and generating a net positive impact on biodiversity from its activities. This commitment implies integrating biodiversity into strategic planning, risk management through continuous assessment and throughout the life cycle of impacts and dependencies, applying the mitigation hierarchy (avoid, mitigate, restore and compensate) in all our activities, avoiding the location of new infrastructures in protected areas, implementing biodiversity action plans, collaborating with Interest Groups and promoting awareness and communication.

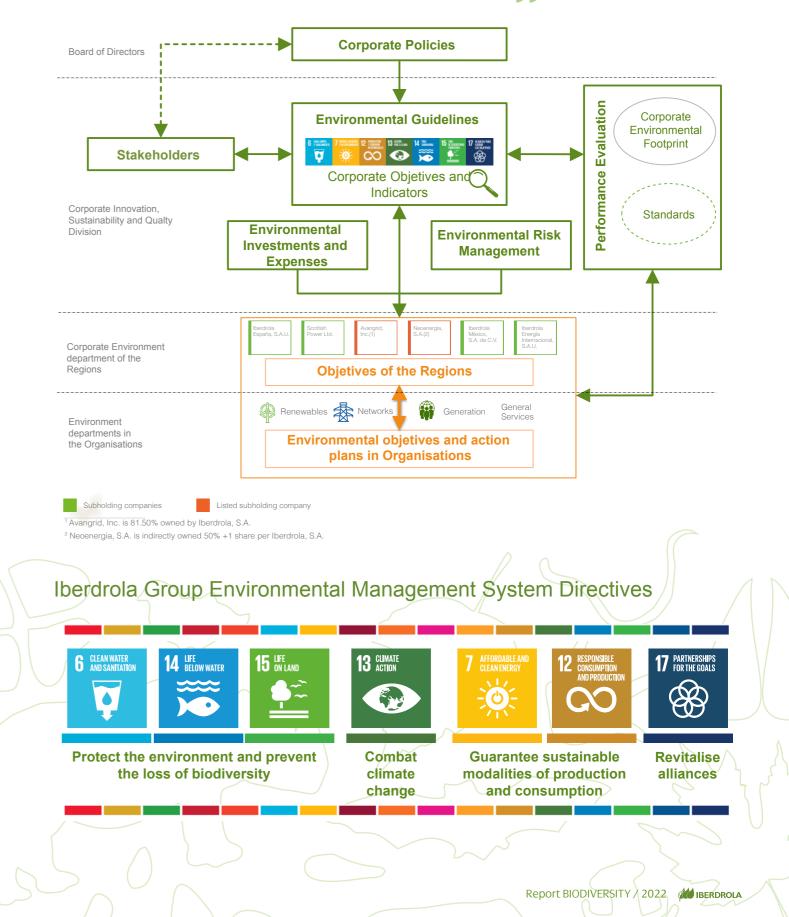
To this end, this *Biodiversity Policy* establishes four lines of action:

- · protect biodiversity and make sustainable use of natural capital;
- · continuously identify, quantify and assess the impacts and dependencies of the group's activities;
- · collaborate with Stakeholders; and improve;
- raise awareness and communicate internally and externally with transparency.

### Iberdrola Group Environmental Management System

Iberdrola has a common and homogeneous environmental management system for all group organisations in which the protection and conservation of biodiversity is the protagonist in the first of the environmental guidelines.

# <sup>66</sup> The Environmental Management System is integrated into all the Iberdrola Group organisations



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 continuous improvement objectives in relation to biodiversity, which materialise in environmental monitoring and control programmes and concrete actions aligned with Action Plan principles.

Iberdrola has an environmental committee 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.

### Priority lines of action

The actions for the management of aspects related to biodiversity follow the four priority lines of action of the Biodiversity Policy:

- Protect biodiversity and make sustainable use of natural capital by applying the mitigation hierarchy with a conservation approach, integrating best practices into its management throughout the entire life cycle and promoting actions for the regeneration and conservation of natural heritage;
- Continuously identify, quantify and assess the impacts and dependencies of the Group's activities on natural capital with a focus on biodiversity throughout the life cycle of the facilities by promoting research and improving knowledge of the ecosystems in the areas where it operates.
- Collaborate with stakeholders, looking at their needs and expectations in terms of biodiversity and integrating these into action plans, and participating in research projects.
- · 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.

### **2.4.** Action on drivers of biodiversity loss

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.

The 2030 Biodiversity Plan reinforces the company's efforts to integrate into its strategy the search for opportunities to make the generation of renewable energy compatible with other uses and improve the biodiversity of those territories in which it operates.



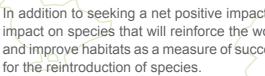
In this Plan, the company's new developments must have a Biodiversity Action Plan with a neutral or positive impact on ecosystems as of 2025 in accordance with the accounting framework of the Plan.

The Plan also reinforces the work that the company has been doing to apply the mitigation hierarchy (avoid, minimise, remedy and, as a last option, compensate) in all projects phases from conception and the Environmental Impact Assessment (EIA) processes to the decommissioning and through to operation.

Most of the impacts that result in loss of biodiversity are avoided in the design phase, and for this reason we firmly believe that understanding the environment is the best tool to avoid or minimise the effects on it. For correct site selection, Iberdrola avoids locating new infrastructure in protected areas (including World Heritage Sites, national protection areas, SCIs, SPAs and related IUCN categories) or high biodiversity value areas 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 study, 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, lberdrola continues to work with stakeholders to minimise any environmental impact and restore the affected areas.

### Loss of species



Thus, the operating units carry out specific programmes and actions to avoid, minimise, restore and compensate for effects on habitats and species, as well as monitoring their interactions to correct the impacts. (See section 4)

- the restoration work on peatlands;

In addition to seeking a net positive impact on ecosystems, the Plan works to achieve a positive impact on species that will reinforce the work that Iberdrola has been doing to minimise impacts and improve habitats as a measure of success to guarantee the survival of species and in projects

· Ecosystem restoration programmes in which it is worth highlighting the Tree Programme and

· Programmes to reduce the impact on species, in particular due to collision and electrocution; Wildlife tracking and monitoring programmes (mainly birds, Chiroptera and fish);

- Programmes to improve the management of vegetation under lines and in photovoltaic plants where vegetation cover is maintained without the use of herbicides;
- Programmes to promote habitat and species conservation.

### Climate change



The company has published its Climate Action Plan, which represents a new impulse to Iberdrola's commitment to zero net emissions and progress towards decarbonisation. The company has set itself the goal of achieving emission neutrality at its generation plants and own consumption by 2030 and reaching net zero emissions in all its activities before 2040. Along with this announcement, an investment plan of 47,000 million euros has been announced for the period 2023-2025 with a focus on networks and renewables.

The commitment to clean energy and to promoting measures to combat climate change worldwide, has led Iberdrola to reduce its emission intensity by more than 18% in the last five years, going from 136 gr CO<sub>2</sub>eq /kWh in 2017 to 96 at the end of 2021, ranking among the lowest of energy companies internationally. For the purposes of comparison, the specific emissions of European electricity companies are 218 kg CO<sub>2</sub>/MWh<sup>13</sup>. Iberdrola's low emission intensity is justified by the production mix with an emission-free production of 80% in 2021. Iberdrola already generates 100 % of its energy with zero emissions in countries like the UK, Germany and Portugal.

The interconnection between climate and biodiversity is becoming more and more evident and only considering them as part of the same complex problem can effective solutions be developed. For this reason, in the Biodiversity Plan, Iberdrola promotes Nature-Based Solutions projects such as the Tree Programme that seeks to improve forest ecosystems and their biodiversity, while helping to mitigate the effects of climate change.

### Pollution



Problems like eutrophication and ecotoxicity are derived from pollution. For this reason, Iberdrola applies the principle of prevention in all its activities and implements control mechanisms to avoid contamination of the water or soil environment due to spills or discharges. Thus, 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 massive spillvin substations and transformer stations, the waterproofing of basins or the installation of containment barriers in sensitive environments.

Regarding the emission of NOx gases, the decarbonisation strategy of our generation park entails a drastic reduction of these pollutants.

13. Source: European carbon factor Benchmarking of CO2 emissions by Europe's largest electricity utilities (October 2021, PwC).

### IBERDROLA www.iberdrola.com

### Invasive species



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 to this end.

## **66** Iberdrola seeks and implements the best available surroundings of its facilities "

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,

techniques to preserve or improve the habitats in the

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

- 3.1. Value chain
- 3.2. Activities and facilities of the Iberdrola group
- 3.3. Facilities in Protected Areas
- 3.4. Protected Species near Facilities
- 3.5. Main Impacts and Dependencies
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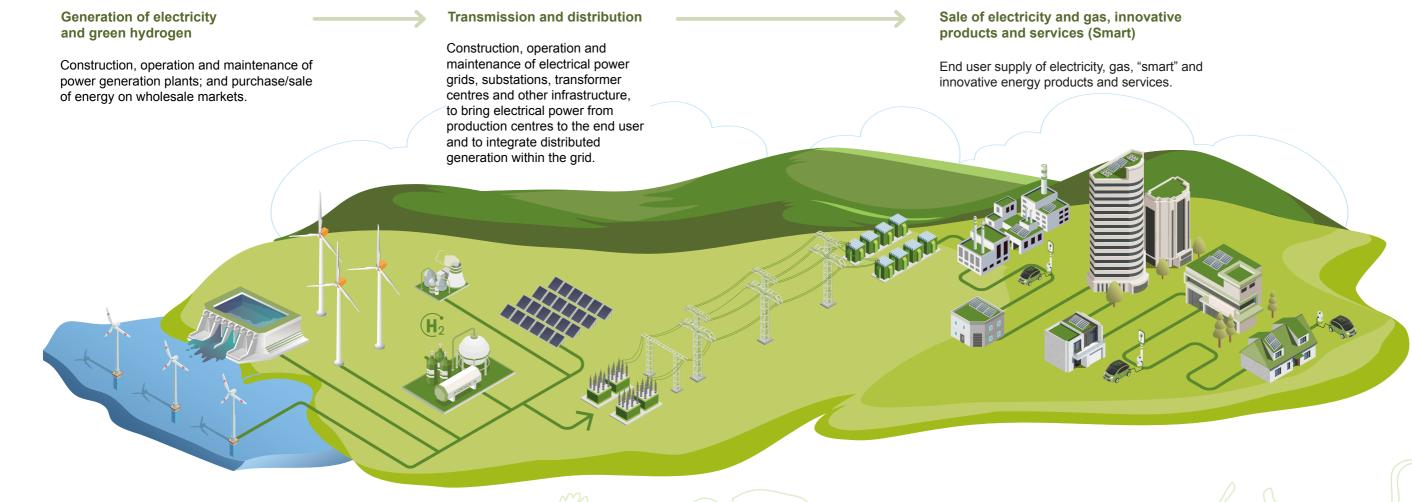
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### **3.1.** Value chain

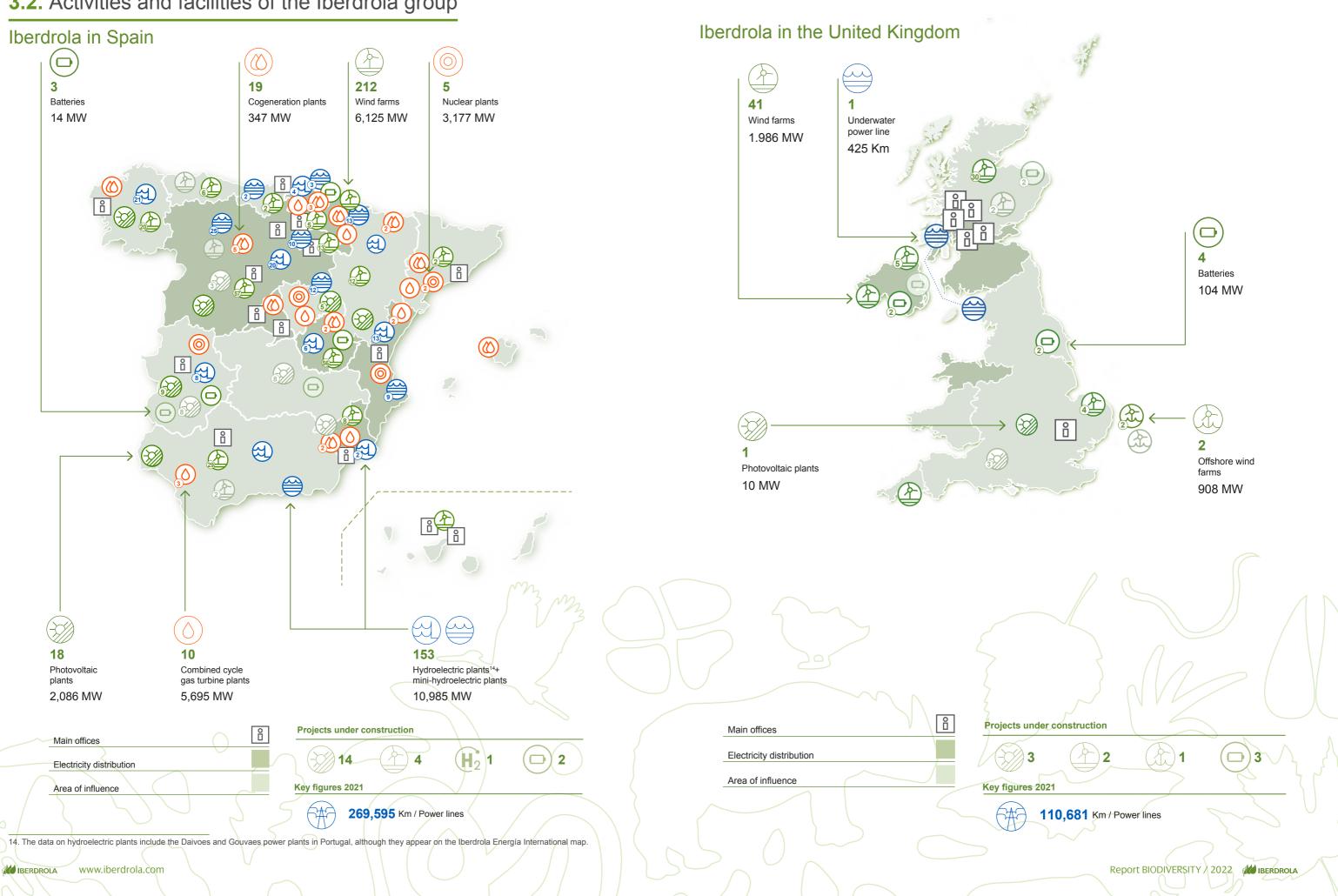
In its electricity generation, transmission, distribution and commercialisation activities, Iberdrola interacts with a diverse range of ecosystems, landscapes and species across a very large geographical area.



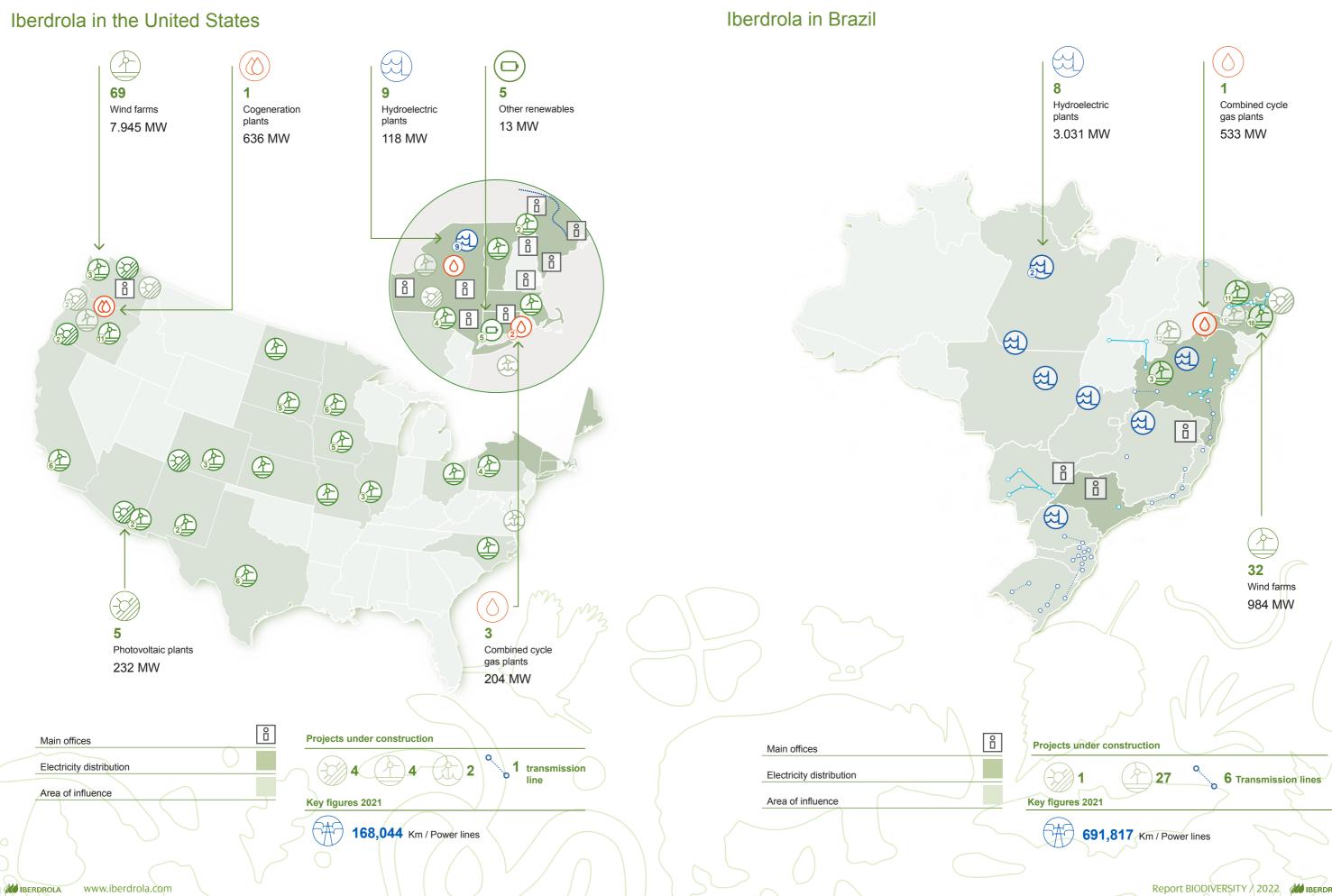
These activities require adequate infrastructures which must be built, operated, maintained and eventually dismantled. These facilities and structures can be located on remote hills, in forests or on coasts, even in the middle of cities.

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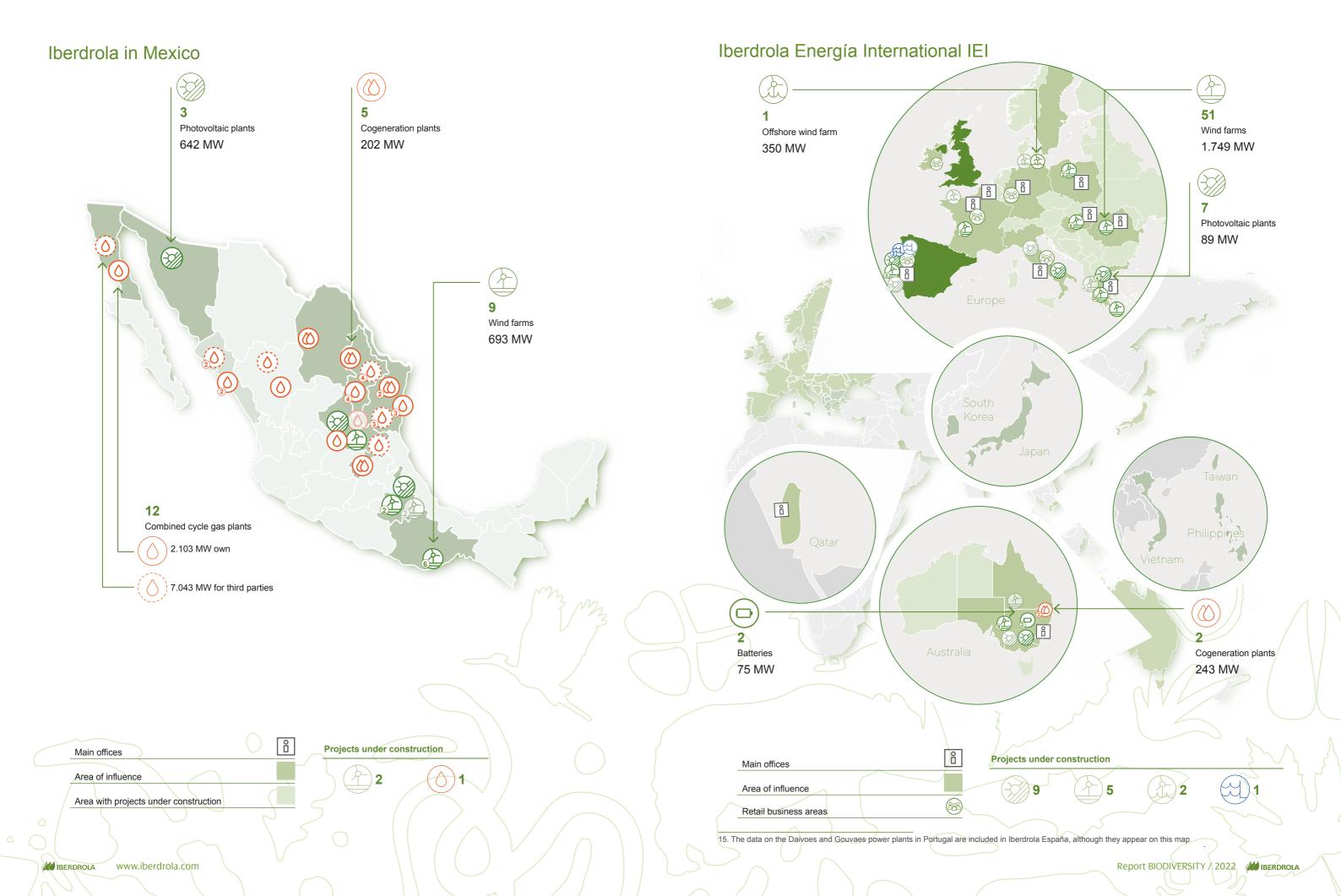


### 3.2. Activities and facilities of the Iberdrola group





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### **3.3.** Facilities in Protected Areas

The areas lberdrola function as habitat for a variety of wildlife and plants, some of which are in some way protected.

Knowing which protected areas or high biodiversity value areas 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 areas or with high biodiversity value areas due to the amount of land they take up.

- 18% of the reservoirs of hydroelectric power plants are located within protected areas or areas of high biodiversity.
   Often, these areas have been classified as such thanks to the existence of the reservoir.
- 11.3% of onshore wind farms are in protected areas<sup>16</sup>.
- 8% of power distribution lines and 2% of transmission lines are in protected areas.

### 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.

- 58% of the surface area of Iberdrola's reservoirs are located in protected areas or high biodiversity value areas. In this sense, it must be considered that many of the protections were derived from the ecosystems created by the presence of the reservoir.
- 16.5% of onshore wind farms are in protected areas.
- 7% of 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.



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

### 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	interior	31,505 ha	Biosphere reserves, Ramsar Wetlands, Natura 2000 Network, national parks and natural parks.
Power lines	interior	19,315 km	Natura 2000 network, Ramsar Wetlands, National Parks, Natural Parks, Biosphere Reserves.
Substations	interior	131 units	Natura 2000 network, Ramsar Wetlands, National Parks, Natural Parks, Biosphere Reserves.
Transformer stations	interior	8,425 units	Natura 2000 network, Ramsar Wetlands, National Parks, Natural Parks, Biosphere Reserves.
Onshore wind farms	interior	568 ha	Natura 2000 Network, Important Bird and Biodiversity Areas
	interior	82 ha	Natura 2000 Network
Nuclear power plants	Adjacent	3 units	Nature 2000 Network and Important Bird and Biodiversity Areas
Thermal power plants	Adjacent	6 units	Natura 2000 Network, Protected Landscapes, Biosphere Reserves and Marine Protected Areas



ScottishPower has no operating onshore wind farm facilities in designated protected areas, although 61% of its wind farms are located in areas of high biodiversity value and 23 of these are partly on peatlands and priority habitat. 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.

East Anglia ONE offshore windfarm lies within Southern North Sea Special Area of Conservation (SNS SAC), formally designated in 2019 after the construction of EastAnglia ONE commenced 2018, 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.) A part of the area is also within the Liverpool Bay Special Protection Area for Birds (SPA).

Only 3% of the ScottishPower distribution lines and 3% of the transmission 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).

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Technology	Location with respect to the protected area	Affected Area/ Length	Degree of protection
Power lines	interior	3,090 km	National Park, Natura 2000 Network, Ramsar Wetlands, National Nature Reserve (NNR) and Sites of Special Scientific Interest (SSSI).
Substations	interior	419 units	National Parks, National Scenic Areas (NSA), Natura 2000 Network, Ramsar Wetlands, National Nature Reserves (NNR) and Sites of Special Scientific Interest (SSSI)
Transformer stations	interior	8,689 units	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	interior	36,700 ha	Natura 2000 Network and Marine Protected Areas (MCZ)
Onshore wind farms	Partially interior	10,001 ha	Areas of Special Scientific Interest (SSSI) and Priority Habitat of Annex 1, Habitats Directive (92/43/CEE)

### **United States**

Only one of Avangrid's 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.

In energy distribution and transmission, Avangrid has only 2 substations 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 also operates and maintains 9 hydroelectric projects, none of which are located within protected areas or areas of high biodiversity value.

Technology	Location with respect to the protected area	Affected Area/ Length	Degree of protection	
Onshore wind farms	interior	32 ha	National Forest System	
Power lines	interior	481.1 km	National Forest (USFS), Nature Reserve, State Forest Reserve, State Conservation Area, National Wildlife Refuge, State Forest, Wildlife Sanctuary, National Trail (NPS), National Scenic Trail.	

### Brazil

The Neoenergia Group operates partly in biomes considered as biodiversity hotspots with respect to worldwide conservation, such as the Cerrado and the Atlantic forest, which increases the Group's commitment with the minimisation of environmental impact from its activity.

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 have to meet all the requirements required by environmental agencies to ensure the protection of these spaces, which are fundamental to the conservation of biodiversity.

т	echnology	Location with respect to the protected area	Affected Area/ Length	Degree of protection	
	Power lines	interior	74,774 km	Environmental protection areas (APA).	
$\bigcirc$	Substations	interior	130 units	Environmental protection areas (APA)	
	Transformer stations	interior	85,874 units	Environmental protection areas (APA)	
(A)	Hydroelectric	interior	4,813 ha	Important Bird and Biodiversity Areas (IBAs), High-Biodiversity Wilderness Areas (HBWAs), UNESCO-declared Biosphere Reserves, Key Biodiversity Areas (KBAs), Private Nature Park Reserves (RPPNs) - Brazil.	
99	power plants -	Adjacent	1 unit	Biosphere Reserves declared by UNESCO, National Parks, Natural Monument (MN) - Brazil, National Park (Parna) - Brazil	
P	Wind farm -	interior	8.32 ha	Key Biodiversity Areas (KBA)	
Ý		Adjacent	1 park	Key Biodiversity Areas (KBA), Environmental Protection Area (APA)	

### Mexico

No Iberdrola Mexico thermal generation plant, wind farm or photovoltaic plant is located within 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.

### 👫 🔍 Iberdrola Energía International

	Technology	Location with respect to the protected area	Affected Area/ Length	Degree of protection
Greece				
	Wind farms and photovoltaic facilities	interior	161 ha	Nature 2000 Network and Important Bird and Biodiversity Areas (IBA)
Hungary				
	Wind farms	Adjacent	3 parks	Near Nature 2000 Network and Ramsar Wetland areas
Portugal				
	Wind farms	interior	0.09 ha	Nature Reserve
Cyprus				
	Onshore wind farms	Adjacent	0.18 ha	Natura 2000 network
5				
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### **3.4.** Protected Species near Facilities

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

Iberdrola closely monitors the IUCN Red List<sup>17</sup> 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	8	20	41	53	561		
United Kingdom	2	4	8	12	120		
United States - Canada	2	13	12	11	39		
Brazil	4	17	33	34	584		
Mexico	0	4	6	12	306		
IEI	0	2	6	10	105		
Totals	16	55	100	113	1,393		

Some of the species are:

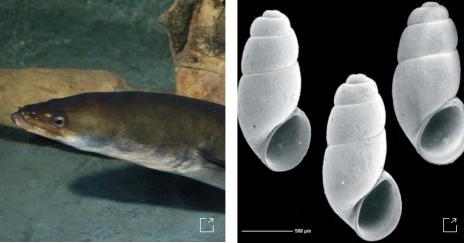
### **Critically endangered:**

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





### **Endangered:**

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





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

17. International Union for Conservation of Nature

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

Pava yacutinga (*Pipile jacutinga*) -Brazil stock photo

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

Tamarino león de cabeza (Leontopithecus chrysomelas) - Brazil shutterstock

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



Spanish Algyroides (Algyroides marchi) - Spain © Per Blomberg

Loggerhead turtle (Caretta caretta) © Howard Hall



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

Freshwater Pearl Mussel (Margaritifera margaritifera) - Europe and USA © lan J. Killeen



### Vulnerable

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

USA © Daniel Jauvin





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

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





### Rusty Blackbird (Euphagus carolinus)

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



Northern Tiger Cat (Leopardus tigrinus) Brazil @Groumfy69



### 3.5. 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

Iberdrola has been working since 2012 on the development of tools that make it possible to identify, quantify and assess the impacts and dependencies of its activities on natural capital. Identifying those impacts and dependencies is an iterative process. Below are some of the sources of information used:

- · Matrix of impacts and dependencies of natural capital resources and ecosystem services at the technology level.
- · Matrix of materiality of activities with respect to the drivers of biodiversity loss.
- · Pilot projects for the valuation of natural capital at Iberdrola facilities.
- · Pilot projects to calculate the net impact of activities on ecosystems and species.
- Iberdrola's Corporate Environmental Footprint that provides the environmental impacts with a life cycle perspective for each technology.
- · Environmental impact assessments in new projects.
- · Surveillance, monitoring and reassessment of impact programmes.
- · Evaluation of environmental aspects in environmental management systems.

### 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 activities of the group, the dependencies with the following nature services have been identified:

- Waterway maintenance service, by means of the water cycle. The water cycle helps recover the river flow required to produce energy at hydraulic 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 hydraulic 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 hydraulic plants and transmission and distribution network facilities.

In addition, dependencies to abiotic supply resources have also been identified, the main ones being:

- Water. This resource is the source of production at hydraulic 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.

In addition, Iberdrola depends on the state of the ecosystems and the conservation of the species for the construction and operation of its activities.

### 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:



### **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.

### **DECOMMISSIONING PHASE**

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

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### 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. Depending on the technology and the stage of the project, the following will be more or less relevant:

Potential impacts								
Construction	Operation and maintenance stage							
Construction stage	General effects	Effect on birds	Effect on land wildlife	Variation in water quality	Effect on flora			
Change in land use	Habitat and species loss	Electrocution	Electrocution, trapping	Variation in water quality	Fires			
Changes to the landscape	Increased greenhouse gases and climate change	Collisions		Discharges/spills into water	Soil degradation			
Ecosystem fragmentation	Air, soil or water pollution							
Habitat alteration								
Species displacement								

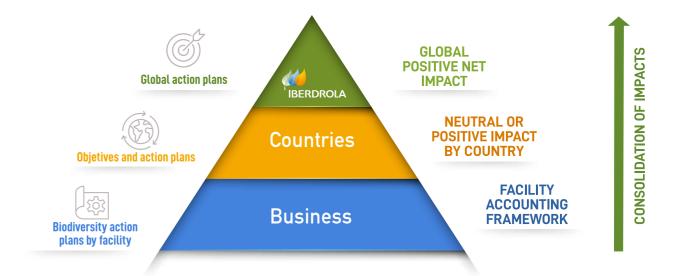
### ANALYSE - MEASURE - EVALUATE - IMPROVE

Nature's ecological processes are complex and it is difficult to establish metrics that aggregately represent the impact of a varied set of activities on biodiversity. In recent years, numerous methodologies have emerged that measure the impacts on it from various points of view and that are applicable to different contexts.

The Iberdrola group has spent many years incorporating the most cutting-edge practices to measure and better understand the impacts of activities, processes and facilities on biodiversity:

- (i) at the facility level, in the environmental assessment processes of new projects and in the monitoring and control of the impacts of their operation; and
- (ii) at the corporate level, through the Corporate Environmental Footprint -through which the impacts of the Life Cycle can be understood-, and the report of internal and external indicators.

With the 2030 Biodiversity Plan, the Iberdrola group has gone a step further and has worked on a biodiversity net balance accounting framework. This accounting framework allows lberdrola to quantify the positive and negative impacts on species and ecosystems derived from the construction, operation, and decommissioning of the projects. The framework is applicable to all facilities and allows for the consolidation of the net balance of impacts at the facility, business and group level. The Iberdrola group will thus know the degree of compliance with its objective at a global level and adjust the biodiversity action plans accordingly.



The aforementioned accounting framework is based on the application of the Biological Diversity Protocol<sup>18</sup> to determine the net balance in species and ecosystems.

### Iberdrola group corporate environmental footprint

Iberdrola identifies the impact of its activities on the value chain through the Corporate Environmental *Footprint of the group*  $[\neg]$ , which takes into account the life cycle of its activities.

In this way, the group's Corporate Environmental *Footprint (CEF)* <sup>¬</sup> allows Iberdrola 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 facilities/technologies/regions responsible.

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Below are the results of the calculation of the Corporate Environmental Footprint of the Iberdrola Group derived from the 2021 activities.

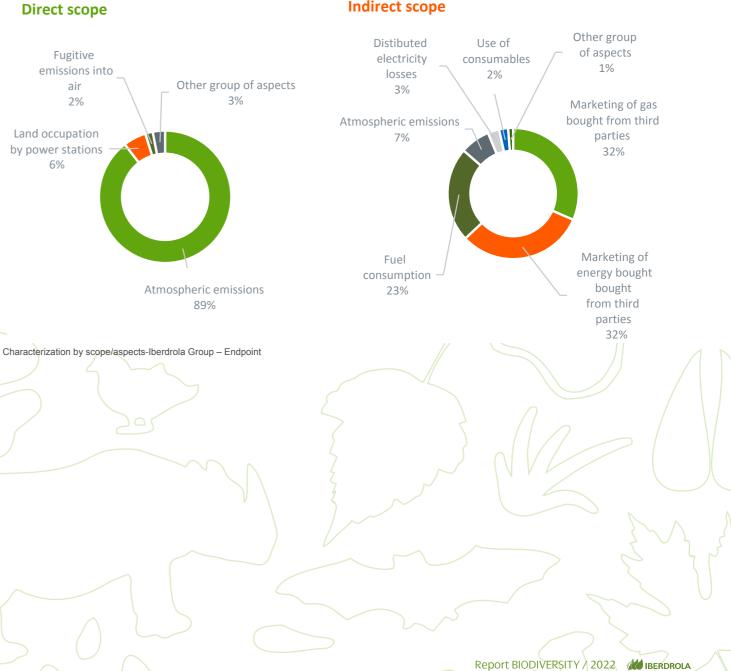
IMPACT CATEGORIES	DIRECT SCOPE (Points)	INDIRECT SCOPE (Points)	TOTAL	
Climate change (Human health)	540,647,218	2,825,215,629	3,365,862,847	
Ozone layer depletion	413	550,920	551,333	
Human toxicity	305,421	361,056,180	361,361,601	
Photochemical ozone formation	29,329	153,371	182,700	
Particulate matter formation	47,143,431	622,070,455	669,213,886	
lonising radiation	0	10,027,455	10,027,455	
Climate change (Ecosystems)	45,538,324	237,988,530	283,526,853	
Soil acidification	37,072	373,976	411,047	
Freshwater eutrophication	0	305,886	305,886	
Soil ecotoxicity	386	369,040	369,425	
Freshwater ecotoxicity	1	1,053,477	1,053,478	
Marine ecotoxicity	5	179,942	179,942	
Rural land occupancy	0	29,941,950	29,941,950	
Urban land occupancy	50,233,504	2,529,455	52,762,960	
Natural land transformation	0	13,841,954	13,841,954	
Mineral resource depletion	0	158,021,217	158,021,217	
Fossil fuel depletion	0	3,978,149,078	3,978,149,078	
TOTAL Points	683,935,103	8,241,828,516	8,925,763,619	

Fossil fuel depletion and climate change are the impacts that contribute the most to CEF as we can see:

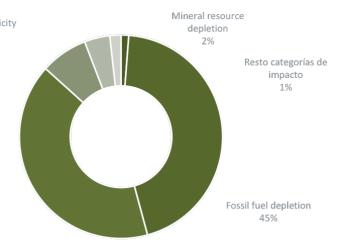
Human toxicity 4%

Particulate matter formation 7%

Climate change 41%



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Environmental profile regarding impact categories - Iberdrola Group - Endpoint

### **Indirect scope**

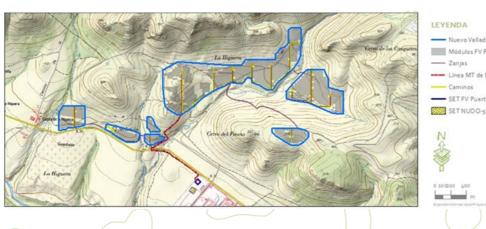
### 3.6. Main projects under construction



The Puertollano II photovoltaic plant is located in the municipal area of the same name in the province of Ciudad Real and will supply renewable energy to the first green hydrogen production plant for industrial use. The photovoltaic project occupies an area of 110.21 ha and a perimeter fence of 12,345 m.

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.

Following the mitigation hierarchy principle, different location and layout alternatives have been considered during the design phase taking into account the potential impact on fauna and flora. In this way, a location free of protection numbers and without catalogued habitats less than 1km away has been chosen



EYENDA Nuevo Vallado EV Puertolla Módulos FV Puertollano II Linea MT de Eva Caminos SET EV Puertolla

In addition, after an exhaustive study of connectivity in which special attention was paid to the mobility of the Iberian lynx, it was decided to divide the plant into several enclosures, minimising the fragmentation of the territory and maintaining ecological corridors in various directions, as can be seen in the bottom image.



The photovoltaic plant is located in an area with a very high reception capacity, on land for agricultural use with existing accesses less than 1 km away, thus avoiding the creation of disturbances due to new roads. It is located more than 1km from the surrounding urban centres, with sufficient solar resources and as close as possible to the point of connection to the grid for evacuation, which is carried out underground. In addition, there is no impact on livestock use given that, once the plant is built, the entry of sheep will be allowed. This



supposes a double benefit for biodiversity, since the livestock will act as a natural controller of the vegetation, thus avoiding the use of herbicides to maintain desired vegetation growth.

Likewise, the following preventive and mitigation measures have been established:

- Prior to carrying out the works, an exhaustive forest inventory has been carried out to identify the holm compensatory measures.
- All the mastic specimens affected by the installation have been transplanted.
- The piles affected by the installation have been relocated to free areas.
- during the nesting and breeding period by means of an adequate scheduling of operations.
- Study of mammalian populations with camera traps.



The project is planned in such a way that maximum productivity is obtained for a minimum occupation of the land, for which 249,144 bifacial panels of 400 Wp have been installed, with greater efficiency and less occupation of space than conventional modules. The total installed power is therefore 99,658 MWp, to which is added a 5 MW battery that makes it possible to store and regulate the discharge of energy to the network, which results in a better use of the resource.



oak specimens of more than 35 cm in diameter that will be affected and to establish the corresponding

• Specific monitoring has been carried out on several pairs of birds of prey nesting in surrounding areas (specifically a pair of golden eagles and another of imperial eagles), disturbances to which was avoided

- The plant cover in the area where the plant is installed has been maintained, eliminating only the vegetation in the area of roads and pipes, which in turn were designed to minimise impacts.
- A perimeter screen has been installed to reduce the low visual impact and promote the integration of the plant into the landscape.
- · All along the fences, cat flaps (small holes in the lower part of the fence) were opened for the passage of minor fauna.

The below points are examples of compensatory measures that have been established:

- Compensation of the affected trees through plantings that add up to twice the number of affected specimens.
- Creation of a 27 ha pasture area
- · Installation of warrens and shelters for lagomorphs and introduction of rabbits for prey of the Iberian lynx.
- Construction of a falcon tower and release of birds using the Hacking method or "country breeding"
- · Installation of nest boxes for Chiroptera, European rollers, owls, and posts and nests on piles for small owls.
- Planting and sowing in the corridors to promote ecological connectivity.







The project is one of the largest investments in the distribution network in England and Wales, costing £18 million and will facilitate the future growth and development of the electricity network in North Shropshire. It consists of a 132,000 volt network, of 22 kilometres between Oswestry and Wem using wooden poles. The existing substation at Wem has been upgraded, increasing the capacity and resilience of the network across North Shropshire.

Biodiversity was considered at all stages of the project, with the aim of minimising any impact on the landscape and ecosystems, applying the mitigation hierarchy. The desire to avoid sensitive landscapes and habitats was a decisive factor in the use of wooden trident poles, which allowed the suspended line to take a more flexible route where necessary. The impact on avifauna was also considered in this decision and the results of the study indicated that bird activity along the preferred line route was relatively low, thereby reducing the risk to local avifauna.

Using existing farm roads eliminated the need for a temporary end-to-end access road, allowing the project to protect existing field boundaries and hedgerows and the various species that use these habitats.



se habitat impacts. Access roads were designed to protect field

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Additionally, various ecosystem regeneration and enhancement plans were included, thanks to collaboration with the Shropshire Wildlife Trust and with the endorsement and dialogue with a wide range of local and national stakeholders, including landowners and agencies. These plans included the following measures:

- 5 pond restorations.
- 2.5 km of hedge planting.
- 500 native species trees planted.
- 0.3 ha of wild flower meadow created.

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- 2.26 ha of wetlands created.
- 0.5 ha of forest management, and
- Otter holts created at 2 sites





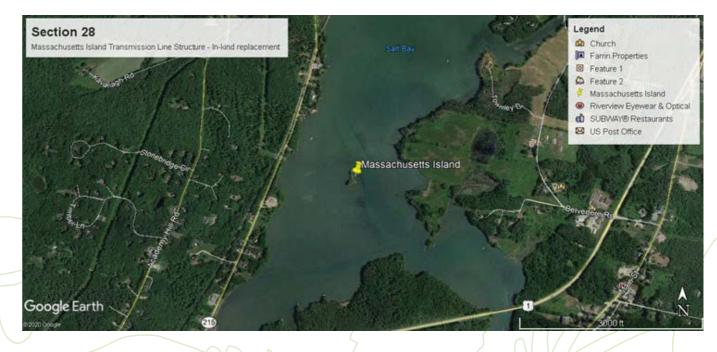
Contract Visited States

### Central Maine Power Comany's Project

In October 2021, Central Maine Power Company (CMP) completed a unique structure replacement project located on a small, inaccessible island in Great Salt Bay, Maine, which took two years to complete. The job required the replacement of a wooden H-frame transmission pole structure that was originally installed in the 1950s. The structure was in very poor condition, and needed to be replaced immediately. The island where the structure is located is very difficult to access and is located within a fragile and protected ecosystem, making the replacement of this faulty structure a unique challenge. Had the structure failed, it could have affected approximately 5,000 customers over an extended period before the structure could be replaced.

The site is located on the Island of Massachusetts in Great Salt Bay, a Maine State Marine Refuge that supports a significant commercial aquaculture (oyster) industry and is bordered by extensive conservation lands with high biological diversity and scenic value. The site supports sensitive habitats and species: bald eagles nest in this area, as well as other aquatic birds, and there are important communities of sea grasses and benthic fauna. In addition, the existence of archaeological/cultural resources (Native American shell remains) is known.

Due to the poor condition of the overhead line support structure, its replacement was considered a high priority for CMP and its execution was carried out while the transmission line was still energised. The defective pole was approximately 55 feet high and was replaced with a 75 foot high structure designed to the best technical specifications.



Access to Great Salt Bay was challenging as this island is tidal and too shallow to use equipment barges to access the equipment. Therefore, for the design and planning of the project and always following the mitigation hierarchy principle, different alternatives were considered and it was concluded that the best option was the temporary installation of a floating bridge supported by pontoons. This option, in addition to being the safest to access the island with equipment and personnel, is also the most environmentally sustainable. The floating bridge, with a length of 1,300 feet, is composed of sections equipped with an anti-sedimentation/turbidity layer to minimise the unintentional transport of sediments during the work period.

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Due to the shallow water levels in the bay, parts of the floating bridge rest on the bay floor during periods of low tide. Because of this, the bridge was designed in such a way that the weight of the equipment is distributed at 0.5 pounds per square inch (PSI) of ground pressure, thereby protecting the Great Salt Bay substrate, including protected marine worm habitat.

To address the coastal zone impacts associated with creating a launch site for the bridge instillation, the CMP project team conducted wetland delineation studies and surveys of vernal pools and nesting birds in the project area during 2019. No vernal pools were observed in or adjacent to the project area. No freshwater wetlands were identified within the project area; however, Great Salt Bay is classified as a coastal wetland as it is tidal and the waters are primarily saline.

The main vegetation associated with the Great Salt Bay is the marine macrophyte (Zostera marina), which is an important plant resource associated with the life cycles of waterfowl, shellfish, fish, and crabs. Distribution maps of seagrass beds exist in Great Salt Bay, and a small amount of this habitat is located within or adjacent to the project area. One study documented the extension of contiguous beds with the presence of this species, as well as its percentage cover/density.

To address unavoidable impacts to this protected habitat, CMP paid mitigation fees in two ways:

- 1. a fee equal to the direct impacts on seagrass beds;
- 2. payments for soil stabilisation and restoration of both the island and the continental coast.

The Maine Department of Marine Resources also conducted a benthic marine survey to determine the impacts of the floating bridge on marine invertebrates. Bald eagle nesting surveys were conducted in spring 2020 and prior to work in 2021 to address observed bald eagle nesting on the island in 2019.

In addition, CMP implemented the following measures to avoid and minimise the impact on biological resources as part of the project:

- During the bat roosting/breeding season (June-July), tree felling/removal was avoided to minimise potential adverse impacts to the federally listed bat species (northern long-eared bat).
- An Environmental Inspector was present during all phases of construction.
- · A city-owned salt/sand storage shed used for site access was restored.
- The waste generated from drilling was properly managed.
- Vegetation control along the transmission line that passes through state conservation lands was carried out manually, without the use of chemicals.



USA Centra Maine Power Company









The Jalapão Project, which includes the 500kV Miracema – Gilbués II – Barreiras II lines and their respective substations, has a length of 729 km with a total of 1,451 supports and passes through the states of Bahía, Piauí, Maranhão and Tocantins, playing an important role in the exchange of energy between the North, Northeast and Southeast regions.

The conservation of biodiversity, as well as the positive relationship with the surrounding communities, has been considered in all phases of the project. The location and design of the project, in addition to considering the technical and connectivity aspects of the existing power system, has also taken into consideration the ecological impact aspects. The study of alternatives that analyses the integration of all the requirements (socioenvironmental, regional, legal and engineering) has been carried out using Geographic Information System (GIS) software and has made it possible to avoid and/or minimise various impacts:

- 1. Avoid the impact on 8.48ha compared to the alternative originally proposed by the National Electric Energy
- 2. Avoid interfering with indigenous lands (quilombola territories).
- fauna and flora gene flow as well as ensure the well-being of human populations;;
- avoiding exposing 3.62 ha of soil;
- damage done to the archaeological heritage.

Agency (Aneel), in order to preserve the already existing biodiversity in the hydrographic basin. This has avoided affecting areas with endemic or endangered species, as well as places of arrival of migratory birds.

3. Avoid the impact on 5.73ha within the Permanent Preservation Area (PPA), whose environmental function is to preserve water resources, the landscape and geological stability, biodiversity, protect the soil, facilitate

4. Reduce the erosive potential by one third compared to the route suggested in Aneel's TR, in addition to

5. Avoid the impact on 2 archaeological sites, whose character would be unrecoverable with irreversible

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The following map shows the land occupation study carried out during the study of alternatives.

ARCADIS

Use and Occupation of Land in a section of Alternative 3

O que são

During construction, environmental education and information programmes were developed both with the contracted companies and with Neoenergia's own personnel.



Soil protection and erosion prevention measures were also established.



Application of sisal blanket as a containment measure - Tower 342/2 Installation of drainage devices as an erosion containment measure-Canteiro Monte Alegre do Piauí - 19/04/2021 Tower 344/2 Canteiro Monte Alegre do Piauí - 22/04/2021

Una vez finalizadas las obras, se realizaron medidas de recuperación de áreas degradadas.



Metal structure dismantling activity - Tower 259 16/09/2020

In addition to the Socio-environmental Programmes, carried out in the operation and maintenance phase, an environmental compensation of more than four million Brazilian real is planned, in addition to reforestation of 335.12 ha divided between the Cerrado and Atlantic Forest.

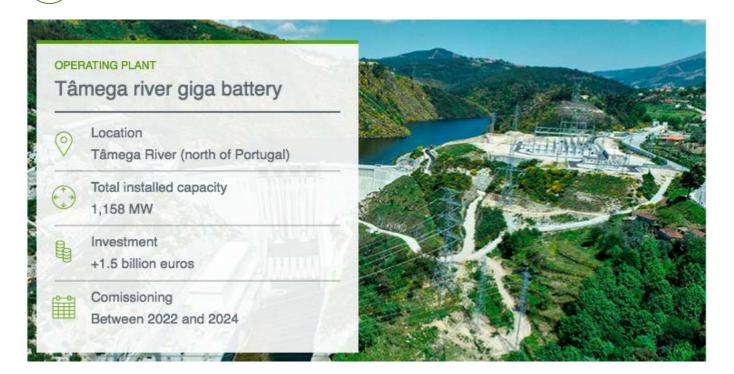
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Planting of fodder seeds (Brachiaria and Campo Grande Estilistas) -Tower 344/1 Canteiro Monte Alegre do Piauí - 22/04/2021

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### Rest of the world (IEI)

### Tamega Hydro complex - Portugal



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, guarry, dumps, works facilities areas, etc.).

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 1,000ha, of which approximately 180ha occupy the Alvão Marão Site of Community Importance (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, 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 impact, limits on the speed of flow through generator input grilles for the protection of aquatic fauna, etc.)
- The layouts of the power lines were modified in some locations to reduce the impact on species (wolf, Quercus suber, etc.) or protected areas (LIC).

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:

- Continuous environmental monitoring on site: 8 environment technicians.
- > 200,000 hectares of environmental surveillance.
- > 10,000 hrs of training.



 Concessions for water collection and discharge points for the works (>45points). 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: 98% of CDW recycled, approximately 107,000m<sup>3</sup> of recycling used on the works,

- >725.000m<sup>3</sup> of other materials reused
- 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.

Margaritifera margaritifera, the habitats of Quercus suber, ground occupied by Phengaris alcon), as well as

on compliance with best environmental practices (e.g. the choice of materials with the least environmental

Team of environmental specialists on a works monitoring mission

Signage at work stations about elements to be protected (tree species, protected flora, Chiroptera refuges, etc.)

• Zone-specific obligations in equipment maintenance and in storage and segregation of waste at each work

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 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 specimens 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:
  - protected flora, otter, Pyrenean desman).
  - 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 around 1,000ha with a total planting programme of over 400,000 trees. 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 28 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.

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- Species-specific programmes (mammals, Iberian wolf, birds, bats, fish, freshwater mussels, invertebrates,

- 20 biologists employed on an ad hoc basis, >30,000km in transects, >1,000 sampling stations, >80,000h

- 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.
- Creation of a Margaritifera margaritifera museum for dissemination and a reproduction centre.
- Improvements in the population of protected fauna: Galemys pyrenaicus and Phengaris alcon.
- Improvements in aquatic ecosystems (ponds, slow-moving sections, spawning grounds).



Examples of forest plantations with native species (Quercus robur, Laurus nobilis) in the municipalities of Boticas and Cabeceiras de Basto





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





: Images of the interior of "Centre for Environmental Disclosure and Awareness-CISA"

Various environmental training and dissemination actions have been carried out with children and adolescents from the municipalities of the area, the aim of which has been to educate on the fauna and flora of the environment, the techniques used for their monitoring, and above all, the importance of these species and their functions in maintaining the ecosystem.





Environmental training in Ribeira de Pena and Vila Pouca

The effect of the works and the project on the socioeconomic aspect is also monitored through a specific annual monitoring programme, which includes: face-to-face interviews with the local population, collection of information on the origin and number of workers on site, interviews with workers and data on claims, among other aspects.



out, such as:

- Ethnological studies.
- Transfers of items.
- Archaeological excavations.
- Recovery of degraded heritage.
- Financing of local activities and proposals by the affected municipalities.
- · Creation of informative material and panels for dissemination.





Finally, to indicate that other measures to promote and protect natural and cultural heritage have been carried





Port Augusta Solar Wind Hybrid Plant - Australia



The Port Augusta project, located in the state of South Australia, is to date the first hybrid solar wind plant of the Iberdrola group in the world, combining 210 MW of wind power with 107 MW of photovoltaic power, for a total capacity of 317 MW, and has represented an investment of 500 million Australian dollars (more than 323 million euros).

The project consists of 50 wind turbines and 250,000 solar panels, constituting the largest wind-solar hybrid park in the southern hemisphere. The plant will prevent the emission into the atmosphere of 400,000 tons of CO<sub>2</sub> per year and will be capable of generating enough clean energy to supply the demand equivalent to the consumption of 180,000 Australian homes. The facility has generated 200 jobs during its construction and has involved the participation of local, global, and Spanish suppliers.

An innovative technique has been used in the construction of the photovoltaic plant to prepare the soil before the installation of the photovoltaic structures, consisting of compacting the vegetation using a roller (vegetation rolling). This technique makes it possible to keep the superficial soil layer intact, as well as the roots of the plants, which ensures a rapid regeneration of the plant community. The results of the rapid regrowth of the vegetation have demonstrated the effectiveness of this technique, being the first time that this method has been used on a large scale as opposed to the traditional techniques in which the surface is levelled by removing the vegetation.

With this technique, the original biodiversity of the area is maintained and the habitat is restored in a short time, having observed the presence of reptiles and insects a few days after the compaction of the vegetation.



The protection of biodiversity has been key in the development of the hybrid solar wind plant in Port Augusta (Australia). Iberdrola has involved its team of local avifauna experts in response to the discovery of a large nest of a wedge-tailed eagle (Aquila audax) in the vicinity of Port Augusta (Australia). Specifically, the 1.80-metrediameter nest was found 480 meters to the southeast of where a future turbine will be placed.

Wedge-tailed eagles are among the largest in the world, typically with a wingspan of about 2.3 metres, which can sometimes reach up to 3 metres. They are endemic to Australia and the surrounding islands and live in a variety of habitats. Iberdrola has decided to carry out periodic surveillance of the area to ensure the conservation of the nest and check for any sign of bird activity. The decision is part of the company's commitment to biodiversity in South Australia and its exemplary leadership in preserving local species and their habitats.



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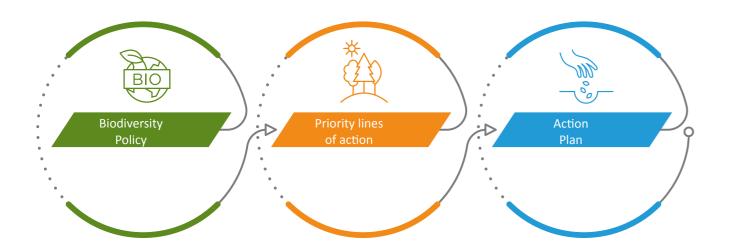


# 4 Programmes and actions 2020-2021

- 4.1. Protection, conservation and regeneration
- 4.2. Assessment, knowledge and research
- 4.3. Collaboration with stakeholders to enhance biodiversity
- 4.4. Awareness and communication

In its Biodiversity policy, Iberdrola defines its priority action lines which are integrated into the management of the operating units in action programmes and specific actions. In this 2020-21 period, Iberdrola has carried out more than 1,600 actions to protect biodiversity.

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## 4.1. Protection, conservation and regeneration

Protect biodiversity and make sustainable use of natural capital by adopting a conservation hierarchy, integrating the best practices throughout their life cycle into the management of assets and promoting actions for the regeneration and conservation of natural heritage.

### 4.1.1. Actions for the Conservation, restoration and regeneration of ecosystems

Iberdrola is committed to the conservation, restoration and regeneration of ecosystems and works not only to avoid, reduce and compensate for the effects caused by the construction of new infrastructure, but also to promote voluntary projects that contribute to reversing the loss of biodiversity in the ecosystems.

### Iberdrola Trees Programme

Forest ecosystems are home to 80% of terrestrial biodiversity. In its commitment to the protection of biodiversity, in 2020 Iberdrola created the Trees Programme for the conservation and regeneration of forest ecosystems. Iberdrola set the goal of promoting the conservation and planting of 20 million trees by 2030 in this programme. In this 2020-21 period, the group has promoted the planting of 2.3 million trees.

The programme encompasses three main lines of action called "branches", with the following objectives:

**Branch 1: Conserving natural heritage.** Ilberdrola applies the mitigation hierarchy in all its projects and prioritises alternatives that avoid affecting forest vegetation. In cases where it is unavoidable, it works on minimising and compensating for this impact. The objective of this branch is to collect information on these actions and their results in order to monitor the conservation of natural heritage. In this 2020-21 period, 1.5 million trees were planted in Brazil, Spain, Portugal, the United Kingdom, the United States, Mexico and Greece.

The actions of this line are described in this section and are identified with the symbol "Tree Programme – Branch 1".

**Branch 2: Regeneration and creation of natural value.** This line of action aims to promote reforestation and restoration projects that contribute to the regeneration of forests. These projects are not linked to infrastructure mitigation or compensation and are voluntary. Since the beginning of the programme, more than 760,000 trees from initiatives developed in Spain have been planted. The actions of this line are identified with the symbol "Tree Programme – Branch 2" and described in this section and in *section 4.3.* 

**Branch 3: Social value: research and raising awareness.** This line seeks to promote shared knowledge, fostering collaboration, awareness, and research with interest groups among others. Since the beginning of the programme, more than 10,000 trees have been planted, awareness talks have been held, and work has been done with stakeholders in alliances such as the 1t.Org Corporate Alliance of the World Economic Forum. The actions of this line are identified with the symbol "Trees Programme – Branch 3".

In addition to the actions of the trees programme, focused on forest ecosystems, actions have been carried out on other types of ecosystems. Some of the conservation, restoration and regeneration actions on different types of ecosystems (woodlands, wetlands, etc.) that Iberdrola has carried out in the different geographical regions in this 2020-21 period are described below.



# Spain

Iberdrola in Spain has carried out more than 20 initiatives for the conservation, restoration and improvement of ecosystems, both voluntary initiatives and ones arising from the construction of new infrastructures. These initiatives have contributed to planting more than 766,700 trees, restoring land changed by human activity and recovering natural land by dismantling infrastructure.

#### Corporation

#### **Actions**

conservation of more than 1,960 hectares of Iberdrola plots adjacent to the Cortes-La Muela hydroelectric plant. The objective is to

improve the ecosystem damaged by the severe fires, creating woodland that serves as the foundation for a diverse and resilient ecosystem. The project has been carried out by "CO, Revolution" and is innovative in nature since pioneering techniques have been used, both in the spreading of seeds spread with drones and in the conservation of existing vegetation. The species Aleppo pine, hackberry and holm oak have been used. The first results show that the project has contributed to the planting and germination of more than 730,000 trees.

Villarino forest. Forest restoration of a 7.5 Forest restoration of areas affected by fire. ha plot with traditional planting and seeding of 6,200 native species trees. In addition, forestry work was carried out with the aim of improving the forest ecosystem.

#### Iberdrola Spain Foundation

#### Actions

Chinchillas' national sport conditioning Forest restoration and extension of the fauna refuge center (Albacete). Reforestation of a 20 ha and food area plot with 17,000 trees, in a proportion of 80%

pines and 20% holm oaks. The plants were supplied by the "El Sembrador" nursery, which develops agreements with NGOs to support the labour insertion of women at risk of social exclusion. In the reforestation, 12 professionals from companies in the Chinchilla area were hired, the result of the collaboration agreement that Fundación Iberdrola España has with the General Directorate of Infrastructures of the Ministry and which consists of the partial reforestation of the firing and manoeuvring ranges of the Spanish army.

(see section 4.3).

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#### Goals

Cortes de Pallas forest. Reforestation and Forest restoration of areas affected by fire





#### Goals



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Goals

#### General services

#### Actions



Training campus. Reforestation of 33,010 Reforestation and awarness m<sup>2</sup> on the San Agustín de Guadalix Training Campus with 3,640 native tree and shrub plants that double the agricultural land

occupied for the construction of the car park.

Iberdrola Forest - Training Campus. Recreation of four different types of Spanish forest ecosystems with planting of 875 trees for the creation of BOSQUE

IBERDROLA on the Training Campus: Pine forest, riverside forest, Mediterranean forest and Holm oak/ pine forest. Initially, they were part of the inauguration of the Iberdrola Campus and subsequently transferred to their final area on the Campus, where visitors can learn about the different types of Mediterranean forests in situ.





### Photovoltaic Plant

#### Actions



A total of 655 holm oaks have been planted with their corresponding cage to protect them from herbivores in an area close to

the installation as a compensatory measure for the construction of photovoltaics. The chosen area was affected by a fire and the densification of the meadow ecosystem is desirable.

of 9 different species were planted with the intention of achieving a perimeter strip of vegetation in different strata (perennial herbaceous, shrubby and arboreal). This in order to generate an ecotone, or transition zone, between the external habitat of the facility and the internal one, which is as diverse as possible and serves as an incentive for resources for the species in the area.

#### Goals

Campo Arañuelo Photovoltaic plant III. Restoration of areas damaged by fires.





Teruel Photovoltaic Plant. In 2021, 9,000 seedlings Creation of fauna refuge and food area.





### Photovoltaic Plant

#### Actions

of tree and shrub vegetation in 4 areas of the plant serve as shelter and food for all types of fauna. covering a total of 1.5 ha. This was complemented with the integration within the plantation of autochthonous aromatic species to encourage pollinators. These plantations were made in the form of a "copse" looking for the greatest possible naturalness and will be accompanied by a livestock exclusion fence.

total of 1,555 trees and shrubs were planted. All the selected plants coincide with the species present in the area, and are of three different types: Piruétano, mastic and broom. The objective is to create a "copse" area that in a few years will function as a vegetal screen with respect to the road and become a refuge area, providing new resources for the fauna species present in the area.

Onshore wind

#### Actions

Chimiche II wind farm. In 2020, monitoring of the Environmental restoration and landscaping to correct environmental restoration of 6.26 ha of thermo-impacts and habitat loss for Pimelia Canariensis. Mediterranean and pre-steppe scrubland habitat was carried out as part of the mitigation and compensation measures of the wind farm project. The results show a high percentage of rooting of the planted specimens. In total 4,430 specimens of Euphorbiaceas, Ceropegia, Kleinia, and Plocam were planted. The coverage of the vegetal restoration is perfectly matches that which is observed in the environment of the wind farm, as well as the different species planted.

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#### Goals

Núñez de Balboa Photovoltaic Plant. Plantation Ecological restoration with mosaics of vegetation that



Núñez de Balboa

Oriol photovoltaic plant (Ceclavín). In 2021, a Create an area of refuge and food for fauna





### Onshore wind



Actions

Capiechamartin Wind Farm. Planting of Tree planting trees to compensate for trees on land affected by the park. The 10 affected Pinus pinaster pines were replaced by 15 birches

(Betula celtibérica) and 10 Carbayos (Quercus robur) on the same plots.

### Goals



birch tree



### Hydroelectric Generation

#### Goals

Conso demolición

Actions taken to demolish huts, lines, etc and Recovery of natural terrain reinstatement as natural terrain

At the Conso Hydroelectric Power Plant, the demolition of dilapidated construction buildings and recovery of the area were carried out;

At the El Águila Hydroelectric Power Plant, demolition work and subsequent sealing was carried out on the loading chamber in 2020. The restoration was carried out manually with the planting of 84 native vegetation seedlings of the area, corresponding to its type of vegetation (oaks, beeches, etc.) with evergreen and deciduous trees, as well as shrubs, to generate a balanced and diverse plantation. In 2021, at this same plant, demolition work was carried out on the siphon installed to carry water from various dams to the loading chamber.



El Águila demolición sifón



### **Thermal Generation**

### **Actions**



Lada thermal power station. Planting of Revegetation at the landfill 400 trees in 2021 as a revegetation measure at the landfill. Different areas of

the hazardous waste landfill have been revegetated with trees of the Chestnut (Castanea sativa) and Downy Birch (Betula celtibérica) species using the hole technique.

**Nuclear Generation** 

#### Actions

Almaraz Nuclear Power Plant After the execution of Monitoring and maintenance of the plantation the ATI-CNA Revegetation Project, for the recovery of a meadow as compensation for the construction of the Individualised Temporary Storage (Almacén Temporal Individualizado - ATI), this period has seen the monitoring and maintenance phase carried out consisting of irrigation, revision and repair where necessary of protective grates and cages.

### Iberdrola Spain Social Projects

### Actions

The Volunteering project organised Reforestation and awareness several initiatives to involve employees in the reforestation of the Urdaibai Biosphere Reserve, the Almorchones Woodland of

Public Utility in Navacerrada and in different places in Spain. In total, more than 8,000 trees were planted with these initiatives (see more detail in section 4.3.6)

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#### Goals



Lada thermal power station

## Goals



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# United Kingdom

ScottishPower Renewables planted more than 626,000 trees in this period and has contributed to the restoration of more than 10,000 ha of peatlands.



### Onshore wind

During the 2020-21 period, ScottishPower Renewables has carried out ecological restorations in onshore wind farms, most of which concern the recovery of degraded habitats, the creation of native forests and the monitoring of species. ScottishPower Renewables has continued to work on Habitat Management Plans (HMPs) at 29 sites totalling around 10,000 ha. The HMPs define the objectives for conservation management and set out the management and monitoring measures required to achieve the objectives. The HMPs run for approximately 25 years from commissioning to the end of decommissioning for each site.

#### **Actions**

ScottishPower Renewables have committed to Restoration of cover peatlands restoring and improving approximately 9,225 ha of degraded blanket peatland habitats. SP Renewables use a range of methods to aid habitat restoration including grazing management, ditch blocking and ground-smoothing. SP Renewables developed the ground-smoothing technique which reverses the damage caused by commercial plantations which were historically planted on peatland habitats, by using low ground pressure excavators to create a flattened surface, helping the water table to recover and enabling growth of typical peatland plants such as Sphagnum mosses. In 2020-2021 ditch-blocking and ground smoothing works were carried out across 703ha of damaged habitat across Black Law I and II, Cruach Mhor. Beinn an Tuirc. Mark Hill and Whitelee wind farms.

ScottishPower Renewables manage 2,393ha of forestry across 18 sites, across which over 833ha is native woodland. In the 2020-2021 period alone, Scotti-

shPower Renewables have planted over 625,000 trees across windfarm sites, establishing new woodland areas and undertaking maintenance work on previously created areas. It should be noted that most of the plantations were carried out at the Kilgallioch wind farm (Scotland), whose new addition to the portfolio of operations has led to the creation of more than 1,000 ha of commercial plantations and native broadleaf forests. Work began in 2019 and in the period 2020-21 have planted over 608,000 trees.

### Goals

Species benefitted include black grouse, wading birds such as breeding snipe and curlew, and raptors such as foraging hen harrier and golden eagle.



Area of cover peatland habitat immediately following restoration works and after 5 years

Creation of native forests

Species benefitted include red squirrel and black grouse.



Black grouse (Lyrurus tetrix) @ RSPB Escocia



Klgalloch woodland restoration



### Actions



were carried out to replace habitats im- wide range of species. pacted throughout the onshore cable construction works, including woodland

planting, hedgerow planting and grassland seeding. In total, these activities delivered 35 ha of replacement seeding, 3,500 linear metres of hedgerows, 1,400 trees within woodland zones and 158 individual trees. Around the substation, habitat creation has generated two new Sustainable Drainage Systems (SuDS) basins, 6.5 ha of new woodland, 1,500 linear meters of hedgerows and a variety of grassland areas including species-rich recreational grasslands and wetlands. Further habitat and species enhancements included three hibernacula, five log piles, seven Chiroptera roost boxes, 13 bird nest boxes and one barn owl box.

Great crested newts have already colonised the SuDS basin and will be utilising the terrestrial habitats surrounding the pond as well as the additional enhancement features such as log piles. Chiroptera are present throughout the area so will utilise the hedgerows and woodland as they mature for commuting and foraging as well as the grassland areas which support invertebrates. Birds of prey are common throughout the areas, with wading species also frequently present on the SuDS basin such as green sandpiper and jack snipe. A multitude of invertebrate species are also present throughout the areas.

#### $\mathcal{A}$ 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 guality 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 and documents such as 'The Approach to Routeing and Environmental Impact Assessment'<sup>19</sup> and the 'Land Code of Conduct<sup>20</sup>. These publicly available documents set out Energy Networks' approach to protection of the environment and commitment to minimising disruption and impact to land on which apparatus is sited by avoiding adverse impacts upon environmental and land resources and identifying and delivering opportunities to improve biodiversity.

19. https://www.spenergynetworks.co.uk/userfiles/file/SPEN\_Approach\_to\_Routeing.pdf 20. https://www.spenergynetworks.co.uk/userfiles/file/LandCodeOfConduct\_ENG.pdf

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#### Goals

At East Anglia ONE, restoration actions Large and varied landscaping, project benefitting a



East Anglia SUDS basin before and afte



#### **Networks**

#### Actions

cing the 132,000-volt (132kV) electricity vegetation.

transmission network between Kendoon and Tongland in Dumfries & Galloway. This significant, multi-year project is currently in planning and a detailed environmental impact assessment has been carried out. Findings of surveys and consultation with stakeholders have informed the design process, resulting in design modifications to avoid and/or minimise effects on landscape and visual amenity, cultural heritage, ecology and ornithology, geology, hydrology, hydrogeology, water resources, peat and forestry.

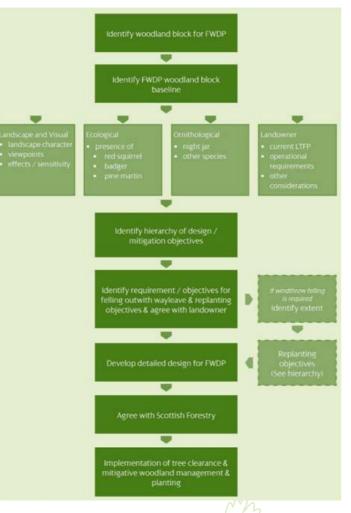
The overall routeing objective has been to minimise the extent of tree felling required to accommodate the line when balanced with other environmental and technical requirements. However, where avoiding forestry has not been possible, opportunities to minimise the amount of felling required have been adopted as part of the design process. A Forest Design Concept (FDC) has been created to identify affected woodland areas and set out the objectives and processes for re-planting, both within and outside the line corridor, to mitigate potential direct and secondary adverse effects.

This concept has identified opportunities to manage certain tree species to support biodiversity and landscape mitigation within the line wayleave corridor itself. This new approach will primarily utilise slower and lower growing shrubs and tree species, enabling their overall height to be controlled by regular site visits and crown reducing without affecting the overhead lines. This approach will be targeted at specific areas where The Forest Design Concept methodology considers landscape, visual ve visual amenity by minimising the linear appearance Appendices.pdf page 16. of the line.

The development of this approach has involved partnership working with third party forest landowners in the area and will be developed further, should the project receive consent. If successful, SPEN will collaborate with the forest landowners to encourage them to deliver the wider biodiversity and landscape enhancement objectives within the FDC through replanting within the windthrow areas.

#### Goals

The Kendoon to Tongland 132kV Rein- Improve the decision-making criteria in the design forcement (KTR) Project involves repla- of the route of the line to minimise the impact on the



doing so will create suitable habitat for wildlife or impro-

#### Actions

North Shropshire Reinforcement Project. A suite of Hedgerow restoration, pond restoration, wildflower environmental enhancement schemes were carried meadow creation, wetland restoration. out along the route, including several hedgerow and pond restorations, creation of a wildflower meadow, canal works at a local nature reserve and wetland restoration.

Falkirk peatland Restoration Partnership is a unique Peatland restoration in central Scotland 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 peatland improvements across 9 sites out of a total of 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.

Planning and design for a net positive impact of the Protecting existing vegetation and watercourses. Eastern Link 1 Branxton Substation project.

The biodiversity assessment concluded that the postponed project will have a net gain of +28.80 (+46.88%) biodiversity area units and +3.48 (+133.88%) terrestrial linear biodiversity units. The project considers mitigation actions by design, conserving whenever possible the existing vegetation and watercourses and actions for net gain such as planting gardens, improving the existing hedge and planting a new hedge on the substation boundaries, as well as the planting of trees outside its perimeter that will provide additional habitat for wintering breeding birds and Chiroptera. Badgers and otters will also benefit from the measures taken in the project.



Hedgerow restoration at Stanwardine Hall



Networks Restoration of Wetlands



### Iberdrola United Kingdom Social Projects

Actions



The volunteer programme in the United Reforestation and awareness. Kingdom has carried out initiatives to involve employees in woodland restoration, such as collaboration with the Lost Woods Project to

coincide with the COP26 in Glasgow, contributing to logistics and the planting of 120 trees and the Trees for Life Project in which 300 trees were planted in the ScottishPower grove. (see section 4.3.7 Volunteer Programme for more information on these projects).

#### Goals



Lost Woods volunteering project.

### **United States**

During this period, Avangrid has carried out conservation and restoration actions in different habitats, totalling an area of more than 114 ha.

## **Onshore Wind and Solar**

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

#### Goals

Monitored Habitat Mitigation Areas (HMA) in Oregon Restoration of grassland and shrub-steppe habitats.

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.



Creation of a wetland mitigation area to meet the Creation of wetland Department of Environmental Conservation (DEC) wetlands permit requirement in Roaring Brook Park.

Conservation actions of 6 acres were carried out at the Conservation actions Golden Hills wind farm for mitigation with a commitment to carry out annual monitoring in the first 5 years and thereafter, monitoring every 3 years.

The Bakeoven I Solar photovoltaic plant has made Wildlife reserve impact compensation awards to protect 740 acres of big game wintering grounds in Oregon.

# **Networks**

"For each project, a layout 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.

#### Goals



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In regards to wetland and habitat restoration, the following projects were performed:

## **Networks**

## Actions

RG&E provided a comprehensive mitigation Wetland restoration 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. RG&E is in post-construction monitoring and reporting phase to determine its success.

#### Goals

plan for unavoidable wetland impacts Creation of wetland offset habitat of East River Road



Networks Wetland Compensation



Brazil is home to the greatest biodiversity on the planet. This abundant variety of life - which provides 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 Brazil, 2020). Despite this wealth, there is consensus among the scientific community that the greatest threat to our biodiversity is caused by habitat loss, especially the forest habitats of the different Brazilian biomes.

Aware of this problem and with the commitment to preserve biodiversity, the companies of the Neoenergia Group, a subsidiary of Iberdrola in Brazil, carry out various actions on the basis of the mitigation hierarchy principle and the results of the studies carried out so that facilities and their associated processes have a net positive impact on species and ecosystems. During this period, degraded areas of Brazilian biomes have been conserved, recovered and restored, for which forest nurseries have been created, using different forest recovery techniques depending on the particularities of each biome, with the aim of achieving the best results in each place.

In total, Neoenergía has promoted the planting of more than 554,000 trees and carried out actions for the conservation and regeneration of more than 8,975 ha of Permanent Preservation Areas. In addition, it has carried out management actions for more than 18,400 ha.



### Hvdroelectric Generation

With the actions that have been carried out during this period, more than 8,975 ha have been conserved and regenerated within the Permanent Preservation Areas, designated to protect the biomes they represent, and more than 444,000 trees have been planted.

In addition to this, other management actions have been carried out in an area of approximately 18,400 ha.

#### Actions

#### Corumbá hydroelectric plant.



the best and most efficient restoration Savannah biome. practices for the restoration of the savannah biome, such as isolation of the zones of

anthropic impacts and partially mechanised direct planting using the subsoil at the contour line. Permanent plots have been installed for the qualitative and quantitative inventory of the recovery areas in order to evaluate the efficiency of the restoration actions.

In total, more than **1.800 ha** of Permanent Preservation Areas (PPA) have been reforested around the reservoir of the hydroelectric plant with native vegetation to preserve water resources, geological stability and biodiversity, protecting the soil and facilitating the genetic flow of fauna and flora. In the 2020-21 period, 377,000 trees have been planted, of which Neoenergia has contributed 265,000 trees.

In addition, work is being done on the conservation and management of the natural regeneration of 2,908 1. Corumbá III\_Before plantin ha of the Brazilian savannah biome. Since 2012, the team of the Corumbá III hydroelectric plant has been carrying out intense fencing work and inspecting the use and occupation of the land around the reservoir, thus ensuring that the preserved areas are free of disturbances that could jeopardise the conservation conditions of the forest areas around the hydroelectric power station, thus helping a natural regeneration of the conserved areas.

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#### Target

The Corumbá III hydroelectric plant is using Conservation, restoration and regeneration of the Brazilian



2. Corumbá III After planting

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### Hvdroelectric Generation

#### Target

#### Itapebi, Baguari and Dardanelos hydroelectric plants



**Actions** 

429/11 are being followed for the restoration Forest biome. of the Atlantic Forest biome in the

surroundings of the Itapebi, Baguari and Dardanelos Hydroelectric Power Plants. The method used for restoration depends on the current state of each area, enrichment being possible in the case of areas with medium and high self-recovery potential and planting in the entire area in the case of areas with low self-recovery potential.

A Degraded Areas Recovery Plan is being carried out at the Itabebi power plant. This programme defines actions through which the degraded areas can achieve minimum characteristics that allow the formation of ecological processes to promote their recovery, so that, as far as possible, they recover a non-degraded condition. In the 2020 and 2021 period, reforestation actions were carried out that involved the planting of more than 14,445 trees in an area of 42.6 ha.

In addition, at the Itapebi power plant, an Islands Surveillance Programme and PPA is being carried out with the aim of identifying activities or actions that can contribute to mitigating the negative impacts on the Islands and PPAs around the reservoir. The total area of PPA in the Itapebi plant is 57.7 ha.

At the Baguari plant, 177 ha of PPA are managed. In 2021, maintenance work was carried out, paying special attention to the areas already planted, in which actions were undertaken to replace some 15,000 seedlings in 2021.

In addition, the conservation of 93 ha of Atlantic Forest is being monitored and supported. Since 2007, the Baguari hydroelectric plant environmental team has been working on fencing and monitoring native forest areas, thus supporting the maintenance of the ecological quality of these areas.

The guidelines of CONAMA Resolution Conservation, restoration and regeneration of the Atlantic



Itapebi Recovery of degraded areas



Hydroelectric Generation

#### Actions

#### Baixo Iguaçú Hydroelectric Power Station



will implement a biodiversity corridor that aims to connect the forested areas of the Iquazú National Park with the areas subject

to expropriation and plant recovery in the Area of Direct Influence of the Baixo Iguaçu Hydroelectric Power Plant, covering the immediate vicinity of the reservoir (PPA of 100 m) and an area downstream of the collection barrier called the Buffer Zone. Different vegetation recovery methodologies will be used in the restoration of this ecological corridor in order to guarantee the effectiveness of the appropriate actions based on the edaphoclimatic characteristics of each area. Seedlings will be planted, seeds will be mixed, Baixo Iguaçu\_Ecological corridor nucleation and enrichment will be carried out, as well as the isolation of the areas to promote natural regeneration. Preparatory actions for the consolidation of the ecological corridor, such as expropriation of areas for the implementation of the PPA, installation of fences, socio-patrimonial inspection and the process of contracting a specialised company to carry out the revegetation activities.

In addition to the ecological corridor, an environmental programme is being carried out for the conservation and regeneration of 3,000 ha of PPA. The PPA consists of forest recovery of a 100 m strip using different Baixo Iguaçu Recovery of PPA methodologies such as total planting, enrichment or improvement of the densification of the area, and nucleation, which seeks regeneration through planting by nuclei.

The recovery of areas affected by the execution of the project is being implemented through the restoration of the soil and the recovery of the vegetation.

### Target

The Baixo Iguaçu hydroelectric power plant Conservation, restoration and regeneration of the Atlantic Forest biome.





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Goals

### Teles Pires hydroelectric plant

tion of the ownership of the land and the implementa-

tion, recovery, maintenance and preservation of the

Neoenergia has contributed to the planting of 160,515

In addition, it is working on the recovery of 3,941 ha of the Amazon Forest in PPA areas, using different

Permanent Preservation Areas around the reservoir.

#### **Actions**

#### **Teles Pires hydroelectric plant**



techniques.

monitor and conserve 15,425 ha of the Ama- biome. zon biome by supervising heritage, land use

and occupation. This implies the regularisa-

The objective of the **Teles Pires plant** is to Conservation, restoration and regeneration of the Amazon



These are divided into four stages:

trees during this period.

- i) Preparation of the area: When preparation is manual and/or mechanised, using agricultural tractors with ploughing and levelling harrows;
- ii) Plantation: Uses several methodologies, depending on the development of each area worked, with up to four different planting methodologies being possible: full planting, island planting, enrichment planting and fill planting;
- iii) Maintenance: Performed at different times of the year, with the aim of ensuring the development of the planted seedlings; and
- iv) Follow-up: Carried out periodically with the objective of characterising the plantation and identifying the establishment of the planted trees. It should be noted that, in addition to the techniques described above, the natural regeneration of native vegetation is managed by fencing the PPAs. Here, the soil seed bank and the dispersal of seeds by fauna help this regeneration.

Teles Pires Recovery of PPA



With the objective of acting in the recovery of the Caatinga ecosystem, in 2020 and 2021 Neoenergia worked on projects that aim to maintain biodiversity by applying the conservation hierarchy (Avoid, Mitigate, Restore and Compensate impacts on biodiversity).

#### Actions

In the execution of the Chafariz and Otis wind Minimise the impact on the Caatinga ecosystem and complexes, work was done to minimise the area of offset impacts. vegetation to be cleared for occupation of the project, achieving a 40% reduction in the area conceded in the Vegetation Suppression Authorisation. In addition, a total of 16.728 seeds and 4.669 seedlings were planted to restore the ecosystem as a compensatory measure.

At the Otis complex, work has been done on mitigating Mitigation and compensation of the Caatinga ecosystem. degraded areas and on compensation:

- Recovery of 18 ha in the Rangel State Park
- Investment of more than €70,000 in State Conservation Units through environmental compensation of the TL 500 kV Oitis
- Environmental compensation of R\$9,267,831.24 in socio-environmental programmes and projects that will be developed in collaboration with SEMAR-PI.
- Application of the Degraded Areas Recovery Plan.

With respect to the construction of the Solar Luzia pho- Mitigation and compensation of the Caatinga ecosystem. tovoltaic plant, the following actions can be highlighted:

- The Santa Luzia nursery has been established with the intention of planting 100,000 seedlings in 3 years. In addition to compensation projects, this nursery will also contribute to voluntary projects. The seeds for the production of seedlings have been collected in conservation areas to guarantee local genetic variability and the maintenance of biodiversity.
- Creation of an awareness ecological trail for environmental education within the Complex. The trail includes the identification of the selected models for the production of seedlings, as well as an awareness programme on the importance of the Caatinga Biome. The trail will be used by the entire community, including schools and the general public.
- Application of the Degraded Areas Recovery Plan.

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### **Onshore Wind and Photovoltaic**

#### **Actions**

#### The Caatinga Restoration Project was carried out in Ecological restoration of the Caatinga ecosystem and 2021 in collaboration with the Caatinga Association awareness and professors and researchers from the Federal University of Rio Grande do Norte. This proposes the implementation of innovative Restoration techniques to promote advances in the creation of more effective restoration models, with the planting of 2,000 seedlings in an experiment in the Açu National Forest. The actions of this project are described in section 4.3.5.

#### Goals



Employee measuring the inserted species



#### **Actions**

Two programmes have been created to respond to the Restoration of degraded areas. elimination of vegetation required for the installation of transmission networks:

Degraded Areas Recovery Plan: The degraded or sensitive areas affected by the concession areas are identified, mapped, characterised and rehabilitated, establishing appropriate recovery, control and mitigation measures for each biome, thus improving the environmental quality of these regions.

Its main objective is to establish the conditions to implement environmental processes that configure a new dynamic process of the soil/water/flora/fauna system, from which ecological interactions similar to those which existed previously are developed where possible, or which allow the development of new uses compatible with the installation and operation of the project and the occupation of the surrounding area.

#### **Forest compensation programme**

Restoration of forest areas using proven environmental Planting seedlings for forest compensation. recovery techniques which comply with all the obligations imposed by current environmental legislation in order to offset the impact of the loss of native vegetation and allow the development of ecological corridors and new protected areas.

Its main objective is to recover the vegetation removed when installing the projects, mainly through the planting of seedlings in areas of environmental relevance approved by environmental licensing agencies.

Goals



#### Actions

The areas affected by the facilities to implement distri- Restoring degraded areas improves environmental quality bution networks and substations are recovered. During in our concession areas. 2020 and 2021, approximately 110,000 seedlings of native species were planted in 83 ha in regions where it operates, mainly in the States of Bahia, Pernambuco and São Paulo, which contributes to improving the environmental quality in the concession areas.



In the State of São Paulo, donations of To compensate for the plant suppression carried out duseedling banks were made in the conserva- ring the connection/extension activities of the distribution tion units and maintenance actions were networks. carried out in the areas in the restoration

process. In 2021, in addition, maintenance work was carried out on 178,000 seedlings in the Turvo River State Park and Caverna do Diabo Park.

# Mexico

There are various plans for reforestation, rescue and relocation of flora in the construction stage of the facilities, which aim to compensate the environmental impact and regenerate the different habitats. During this period, more than 38,300 trees have been planted and contribution made to the relocation of more than 120,000 trees.

Combined cycle ()

#### Actions

and 2021, more than 35,300 trees were of vegetation and erosion. planted and maintenance work was ca-

rried out in the restoration area. These consisted of the maintenance of the Firebreak Gap, the protection fencing, irrigation and replacement of specimens.

#### Baja California Power Plant. Reforesta- Restoration of degraded land tion plan for 35 hectares. In 2020-21, reforestation has been maintained and more than 14,300 plants of the Izote de Sahuili-

qui (Yucca grandiflora) and Parry pinyon (Pinus quadrifolia) species have been replaced.

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#### Goals

### Goals

Topolobampo III Power Plant. Refores- Protect and contribute to the stabilisation and tation plan for 35 hectares. Between 2020 restoration of land where there are problems of loss







### Combined cycle

#### **Actions**

Escobedo Power Plant. In 2021, the restoration of 50 Restoration of degraded land. hectares was carried out as a compensatory measure for the occupation of the land. In total, more than 26,400 plants of the Yucca filifera, Opuntia engelmannii, Cylindropuntia leptocaulis, Opuntia lindheimeri species were planted.

#### Goals



El Carmen Power Plant. In order to compensate Reforestation. the 35.37 hectares that is the total area authorised for the project, the promoting company established a plantation with species from nurseries in the region, considering only native species with adequate requirements for their growth, which was carried out in three rustic polygons with a total area of 35.37 hectares located in the municipality of Cadereyta, N.L. and which had the characteristics of Tamaulipan Thorny Scrub with conditions of degradation, obtaining a total of 22,000 seedlings for the 35.37 hectares. Maintenance activities were carried out during the reporting period.



### **Onshore Wind and Solar**

#### **Actions**

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The La Venta III wind farm. Replacement of 6,400 Reforestation for land restoration. plants in 2020 of the 25 hectares reforested in 2019 for the recovery of evergreen forest vegetation.

## Goals



La Venta III\_Conservation and maintenance



**PIER II wind farm.** Maintenance and conservation in Reforestation for land restoration. more than 7 hectares already reforested.

Reforestation actions at the Santiago Photovoltaic Reforestation for land restoration. plant are scheduled to begin in 2022 on more than 50 ha, including soil and water conservation works. The plants in the nursery are in production at the end of 2021.

Pier IV, Pier B, Santiago wind farms. Rescue and relocation of a total of 121,310 specimens was carried out in the three parks during the construction phase. During the operational phase, the restored areas, have been maintained with the rescued specimens, thereby promoting the preservation and conservation of suitable habitats for the presence of the different species, and work has been done to ensure that the quality and quantity of environmental services in the area are kept constant.

#### Goals



PIER II Conservation and maintenance



FV Santiago Conservation and maintenance Conservation of species and regeneration of habitats



PIER IV Rescue and relocation of fauna

### Iberdrola Mexico Social Projects

asure for the wind farm installation project.

#### Actions



initiatives to involve employees in the reforestation of degraded areas. To highlight the activities in San Pedro Almoloya (Guanajuato), Cuyoaco (Puebla) and El Espinal

(Oaxaca) that added 3,000 trees of different species: pines, white cedars, holm oaks, strawberry trees, mahogany and jacaranda trees. (See section 4.3.7 for more details on these actions).

#### Goals

The Volunteering project organised various Reforestation and awareness



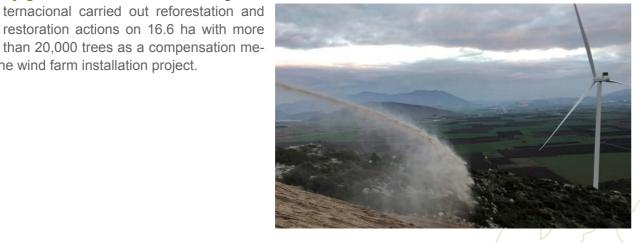
## Greece

More than 38.6 ha have been reforested with the planting of more than 65,300 trees.

### **Onshore Wind Actions**

#### Goals

Pyrgari wind farm. Ilberdrola Energía In- Reforestation and restoration.





Mikronoros wind farm. Reforestation of Reforestation as a compensation measure 22 ha, equivalent to the area occupied by the wind farm, with more than 45,300 trees as a compensation measure for the plant installation project.



# Portugal

In the surroundings of the Támega complex, more than 250,000 trees have been planted, with various ecological efforts in more than 1,000 ha being carried out.



### Hydroelectric Generation

Actions

Tamega Hydro complex hydroelectric Reforestation and restoration. complex. The following measures were carried out with the aim of preserving the natural environment of the project and thanks

to which the biological diversity of an area of 1,000 ha will be improved and more than 250,000 new trees will be planted:

- · Plantation of cork oaks: compensatory measure of planting 17,660 trees on 42.35 hectares. The planting started in 2020 was completed in 2021 with the planting of all the trees planned in the objective and revegetating of the affected area twice. The choice of this native species with reduced flammability responds to the need to establish measures to prevent the spread of fires
- Increased trophic availability: compensatory measure with the aim of increasing trophic availability in forest areas by planting 2,620 trees in an area of 21.83 hectares.
- · Revegetation of slopes: Using bioengineering techniques, the riverbank slopes were revegetated with the planting of more than 56,700 trees in an area of 68.1 hectares. Management, recovery and conservation measures were carried out of forest stands of native species.
- Improvement of river courses: compensatory measure to improve the longitudinal connection of river courses. During 2020 and 2021, 20,000 trees have been planted in an area of 32 hectares, which has made it possible to improve cross-connectivity between riparian forests and other forest formations.
- Recovery of the river gallery: Recovery of the river gallery with the planting of 7,980 trees on 13.6 hectares in 2020 and 2021. The measure improved the longitudinal connectivity of river courses.

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#### Goals



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### Hvdroelectric Generation

#### Actions

- · Planting of native species: compensation with the planting of 139,944 trees on 168 hectares. The planting started in 2020 was followed in 2021 with the planting of five different species: Quercus suber, Quercus robur, Acer pseudoplatanus, Castanea sativa and Quercus pyrenaica.
- Creation of Priority Habitat (Habitat 5230): compensation to create priority habitat 5230 (arborescent Laurus nobilis shrublands), i.e., arborescent shrublands of humid environments dominated by laurel (Laurus nobilis), with plantation of 2,444 trees on 2.2 hectares.
- Selective thinning in scrub areas and selective pruning of 33% to 50% of the pine trees in the forest stands, measures aimed at increasing biodiversity.

#### Goals





#### **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 effects of our networks on fauna, particularly birds. Numerous actions have been carried out in this respect, from the adaptation of supports, to the implementation of new methodologies for the protection of birds. Work also continues to be done on detection measures, and halting our wind turbines to allow for the passage of birds and bats.

In these two years, work has been carried out on more than 235 actions to protect fauna, among which it is worth highlighting the efforts to find innovative solutions to reduce the impact on parks and power lines, conservation actions for species and the rescue of ichthyofauna in hydraulics.

# Spain

In this period, 65,000 supports have been adapted to minimise the risk of electrocution of fauna, which already total more than 87,000 since 2018.

## capable of hosting numerous species of fauna.

## **Networks**

#### **Actions**

The aerial network improvement project aims to Birdlife protection. reduce the effects on birds due to the presence of power lines and continues the previous ALETEO **programme**. This project extends the scope of action of the correction and adequacy of the supports, not only of the RD 1432/2008 protection zones but to the entire territory where Iberdrola operates. In addition, this project seeks to be able to design, control and evaluate the implementation of effective measures that eliminate the impact on birds.

The improvements undertaken to the overhead power lines 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. In this two-year period, i-DE<sup>21</sup> has adapted 65,000 supports and since 2018 they have already added more than 87,000. Some 328,000 more will be adapted by 2030.

In the power lines planning, design and construction Protection of fauna with special emphasis on birds. processes, preliminary environmental studies are carried out and numerous measures are applied to avoid **Bird protection** and reduce the impact. Examples of the most common on electricity grids actions carried out in this period are listed below:

- Design and adaptation of the layout of the line to minimise impacts, avoiding protected areas and minimising the impact on vegetation.
- Carrying out avifauna studies prior to the works in order to determine the breeding areas and delimit the sections and temporary limitation of the works.
- Adaptation of the work calendar, avoiding work in/ critical species reproduction periods.
- Signalling of lines with bird guards to avoid collisions
- Prospecting of nests before the works

21. The electricity distribution company of the Iberdrola group in Spain

IBERDROLA www.iberdrola.com Design of photovoltaic plants that respect ecological corridors and sustain a habitat





### **Onshore Wind**

#### **Actions**

sisting of painting a blade of the wind turbine black as a measure to deter birds for their protection. This measure has been carried out in four wind farms and the change in number of collisions with respect to previously is being monitored.

#### Goals

Blade painting. Project in various wind farms con- Minimise the impact on birds through deterrent measures



Paintaing of blades

Vinyls on wind turbines. Project in several wind far- Minimise the impact on birds through deterrent measures. ms that consists of placing vinyl patterns in the shape of eyes to deter birds of prey from wind turbines. This project is based on previous studies that seem to show that certain shapes or figures drawn on white panels placed on supports on the ground can cause a repulsion or rejection effect on certain types of birds. 72 wind turbines have been selected in ten wind farms in Burgos.

Surveillance cameras with artificial intelligence. In Birdlife protection 2020 the artificial intelligence based bird surveillance system project was started and in 2021 the video surveillance cameras and bird deterrent loudspeakers have been installed in 10 wind farms on all the wind turbines in the wind farms. This innovative detection and positioning system for birds in flight seeks to identify the species and analyse the risk of collision in real time, allowing the development of specific and effective deterrence techniques for their protection, such as the emission of sounds or, where appropriate, activating the wind turbine shutdown. During this period work has been done on adjusting the system and verifying its effectiveness.







Surveillance Cameras and 2



#### Actions

On-site environmental surveillance. In some wind Birdlife protection. farms, environmental surveillance is maintained from sunrise to sunset 365 days a year with qualified personnel. The technicians notify control in the event that there is a risk of collision with an endangered bird so that the wind turbine is stopped and collision avoided.

Atalaya de la Solana wind farm. 5 hectares of ce- Bonelli's eagle recovery. reals are planted annually to improve Bonelli's eagle (Hieratus faciatus) populations. 2020 was the fifteenth year of application in the "Llano Odra y Sangüijuelas" Woodland of Public Utility, property of the Casti-Ila-La Mancha Community Board, in the municipality of Ayna.

the protection of the Pimelia canariensis endemic beetle to keep the rescued specimens until completion of the restoration works for their relocation. After the restoration (see section 4.1.1), the reservoir was deactivated and the success of the measures monitored. The monitoring results show that the species has returned to colonise parts of the restored area.

in the surroundings of two wind turbines with the aim of promoting a passage and habitat for amphibians in the region.

Goals



**Chimiche II wind farm.** A reservoir was created for Protection of the *Pimelia canariensis* 



Verdigueiro Park. Artificial ponds have been created. Creation of a pond for passage and habitat for amphibians

#### **IBERDROLA**

#### Las charcas: un refugio para la biodiversidad











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### **Onshore Wind**

#### **Actions**

Goals

Protective fencing in substations. Project that con- Fauna protection. sists of the placement of a fence around the transformer to prevent the access of marten-type fauna and avoid their electrocution.



### Photovoltaic Plant

#### **Actions**

IBERDROLA

**Oriol Photovoltaic Plant.** The Cabrera vole a is Plan for the protection of the Cabrera Vole one of the most threatened, vulnerable and most endangered Iberian rodents in Spanish fauna. The nearly 20 ponds that exist in the vicinity of this photovoltaic plant promote this natural environment and, for this reason, all the areas that could harbour colonies of this particular rodent have been preserved in the facility. A programme has been developed for its protection and prioritisation, carrying out a followup study and perimeter fencing of the natural pond located in the plant. Other more specific actions will be established based on the analysis of the results.

Photovoltaic plants represent a refuge for native Improvement of fauna populations. fauna and measures are established to promote populations, including:

- Groves of vegetation and perimeter screens for the refuge of fauna.
- · Piles, falcon towers and nesting boxes.
- Construction of troughs or ponds.

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· Pond conservation for amphibians and birds.

#### Goals





Ensure that the water that has passed through Fish protection. the turbines contains the minimum essential concentrations of dissolved oxygen required for

Hvdroelectric Generation

#### Actions

season.

aquatic life.

Maintaining of the ecological flow established for Ichthyofauna protection. the conservation of stretches of river downstream of dams.

year 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, this period being years four and five of the 10-year plan. This species is classified as critically endangered in the IUCN Red List.

Wildlife Service and the Júcar Hydrographic

Confederation to promote the reproduction (nesting)

of the Marsh Harrier, monitoring possible specimens

in the Embarcaderos reservoir during the breeding

#### Goals

Release of over 5,000 eels (Anguilla anguilla) per Recovery of the eel population (Anguilla anguilla).



Each year, there is collaboration with the Ministry Protection of the Western Marsh Harrier.



## Hvdroelectric Generation

#### **Actions**

Protection of fish in the work of emptying reservoirs: Fish protection slow decrease of the level, environmental monitoring, deriving populations, elimination of invasive exotic species and electric fishing in the last stretch for its return to the river.

### Goals



During 2020 and 2021, various measures were Fauna protection carried out aimed at preventing terrestrial fauna from falling into the canals, such as creating hunting fences and building a ramp to assist the exit of animals in the event of a fall into the channel. In addition, two ichthyofauna protection barriers have been installed to prevent entry into the channels.

## species are discovered on-site during construction.

Monitoring activities are described in section 4.2.



#### Actions

from its area has been put in place with the aim of mitigating any impact should raptor activity increase at the site. A tower has been built in order to monitor the presence of raptors and artificial deterrents can be deployed if deemed necessary.

# United Kingdom

In its commitment to protecting biodiversity at its renewable sites, ScottishPower Renewables applies the mitigation hierarchy principle by conducting a thorough study of the impacts on fauna, modifying and adapting the implementations and executing, where appropriate, consistent mitigation plans or compensation.

Planning: During the planning, design and environmental assessment 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 or international importance. Wherever possible, project designs will be modified to avoid sensitive species and habitats. Where these are unavoidable, appropriate additional protected species surveys, are undertaken for amphibians, birds and mammals. Bird surveys are typically conducted for approximately two years to ensure that the appropriate mitigation assessment and design is robust and commensurate with the site in question. Chiroptera activity surveys are carried out to establish their presence and assess activity levels at the proposed site, while surveys to identify the presence of protected mammals such as otter and badger are also carried out. The survey findings identify whether there are any ecological constraints for the project, leading to the development of mitigation measures, if required.

**Construction**: Ecological Method Statements, which sit as part of a wider suit of mitigation measures (typically within a Construction Environmental management Plan), are used where preparation and construction works could potentially affect sensitive species or habitats. The timing of a project is adjusted to avoid spawning periods or nesting times and the duration and sequencing of works are also controlled. The scope and detail of these method statements are established by expert ecological advisers and environmental regulatory bodies. We continue to conduct surveys during construction to ensure that there are no negative impacts upon habitats and species. To ofacilitate this, each site has an Ecological Management Plan which may include a Breeding Bird Protection Plan

Lynemouth wind farm. To deter the geese that Geese protection. hibernate in the vicinity of this wind farm, replanting has been carried out in a nearby location to create an alternative feeding area.

# Offshore wind

#### **Actions**

associated fauna established itself naturally in the in the temporary drainage reservoir during construction. drainage basin of the East Anglia ONE Offshore Wind Farm substation construction site. In order to prevent the loss of this habitat that arose naturally in this temporary pond after its closure, its contents were transferred to the permanent pond built for the operational drainage of the new substation under the supervision of the ecological team. This involved the careful translocation of all plant material and faunal species including dragonfly and damselfly larvae, other aquatic invertebrates and a juvenile smooth/ newt. After this, the temporary pond was filled in, restoring it to its previous ecology. This work allowed more than 300 specimens to be protected for retention within the habitats created by the project.

IBERDROLA www.iberdrola.com and Protected Species Plan. These detail the mitigation measures to be put in place in the event that particular

#### Goals

At Glen App Wind Farm a plan to deter birds of prey Bird dissuasion plan for avifauna protection.



Avifauna observatior tower at Glen App

#### Goals

Significant habitat with native aquatic plants and Protection of aquatic flora and fauna established naturally



A juvenile smooth newt found at East Anglia ONE



**Actions** 

Goals

V-Route Selkirk Project. Work was done with Scottish Woodland otter (Lutra lutra) National Heritage for the protection of native woodland otters during maintenance work.



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

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. As appropriate, additional studies are carried out on 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.



During this period, 24,500 protectors have been installed on power line supports, in addition to other direct protection measures for different species.

#### **Actions**

#### Goals

In the transmission and distribution networks, a Ospreys (Pandion hallaetus). procedure is carried out to minimise the impacts on ospreys in the nesting or abandoning phase:

- 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 organisations on recovery efforts.





#### **Actions**

Conservation agreement to protect the habitat of the Conservation Agreement to Protect Monarch Butterfly monarch butterfly (Danaus plexippus), including an Habitat. area of 9,798 acres in which vegetation management strategies are carried out that provide a great habitat for the species. Low-growing shrubs and meadows full of nectar- and pollinating species such as milkweed are encouraged in these power line corridors. The agreement is part of the Candidate Conservation Agreement with Assurances (CCAA), a collaboration with the University of Illinois and the US Fish and Wildlife Service to help protect monarch butterflies and habitat in utility power line corridors, highways, and other lands.

installed approximately 500 linear feet (LF) of 12" and 70 LF of 8" replacement gas distribution main within Oak Orchard Creek in Orleans County, New York. In July 2020, before beginning the installation works, a study on mussels was carried out in which 120 live specimens of 5 different species were detected; these were relocated upstream of the river, outside the project area. This study complied with the requirements of the New York State Department of Environmental Conservation (NYSDEC).

In Maine's power distribution networks, Avangrid Wild fauna protection has installed 14,000 wildlife protectors in 2020 and 10,500 in 2021, in addition to the 20,000 already installed. These protectors, in addition to avoiding the electrocution of animals (mainly squirrels and birds), reduce the number of blackouts related to contact with wildlife.



New York State Electric and Gas Corporation (NYSEG) Relocation of 120 living mussels representing 5 species.







#### **Actions**

Goals

In the evacuation networks of the renewable electricity All wildlife, with focus on birds. generation plants, Avangrid Renewables carries out an Avian Protection Plan (APP) based on the Suggested Practices (APLIC 2006) of the Avian Power Line Interaction Committee (APLIC). 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. APP practices are implemented in the project pre-construction and operations phase.

tions established with 16 wildlife recovery organisations, which makes it possible for partners to intervene to rescue, transport and care for any injured animals in the facilities.

Avangrid Renewables minimises risks to the Common Nightjar protection. Nightjar (Nyctidromus albicollis) by running operational modifications from May through August, during the nesting period for the New Hampshire state-listed nightjar.

Avangrid Renewables has maintained the collabora- All wildlife, with focus on birds and Chiroptera.



Bird flight diverters have been installed on the Bird protection transmission line of the Elk River Wind Project to increase the visibility of overhead power lines and thus minimise the risk of bird collision.



#### Actions

Blue Creek Wind Farm maintains a Habitat Indiana bat and northern long-eared bat. Conservation Plan for the federally threatened Indiana bat (Myotis sodalis) and the northern long-eared bat (Plecotus auritus). This plan was presented to the Fish and Wildlife Service in the framework of the request for a Bycatch Permit protected by article 10 of the Law on endangered species.

Conservation Plan for the federally endangered Condor California condor (Gymnogyps californianus) as part of a bycatch permit obtained under Section 10 of the Endangered Species Act. The Plan includes technological monitoring through radio frequency transmitters and geofences, with the aim of establishing when the wind turbines must be stopped.



Adult California condor. Photo credit: US Fish and Wildlife Service https://www.flickr.com/photos/usfws\_pacificsw/5057206247/sizes/l/

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#### Goals



Manzana Wind Power Project conducted a Habitat Habitat Conservation and Protection of the California



Adult California condors perched and in flight Photo credit: Richard Crossley



Second and third year California condor perched and in flight Photo credit: Richard Crossley

# Brazil

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

## Hydroelectric Generation

#### **Actions**

#### Ichthyofauna rescue programmes

- · Installation of anti-shoal mechanisms in the water outlet of the generating units, preventing the entrance of fish during maintenance.
- · Rescuing fish from the turbines during maintenance work on the generating units.

In particular, the following actions have been carried out at the Teles Pires Hydroelectric Power Plant (CHTP):

- Rescue of terrestrial fauna that my be found in the facilities, adjacent structures, accesses and accommodation.
- Preventive measures to reduce the number of fish entering the conduits, such as: guaranteeing the correct operation of the anti-entrapment grids, stops of the machinery outside the spawning period, operation of the adjacent machinery and activation of the spillway to attract the fish to other points and air injections during the isolation of the ducts, among others.
- Rescue of the ichthyofauna in the ducts (spiral box and aspiration) of the 5 generating units of the plant with the aim of avoiding the death of possible trapped fish. Fish are rescued every year during the shutdown of the turbines for maintenance and also during drainage, with the help of trawls and nets. The rescued fish are transported and safely released into the Teles Pires River. In 2021, these measures resulted 14.2 kg of fish of 10 different species being rescued and returned to the river.
- The CHTP works actively to raise awareness among its employees and visitors, both internal and external, about the care of local fauna. If any animal is found in the structures or lodgings of the plant, the environmental team is called to take care of its rescue and release in native forest areas.

### Goals

#### Ichthyofauna protection .





## Wind farms

#### **Actions**

- · Fauna rescue and repelling programmes, with the Minimise the impact on wildlife. aim of mitigating the effects of vegetal removal on the region's fauna.
- · Implementation and operation of the Wild Animal Classification Centre (CETAS), which allows care of wild fauna in situ during the removal of vegetation for the implementation of the parks.
- Application of the wildlife monitoring programme in all wind farms in the operating phase.



### Actions

En las instalaciones de distribución y transmisión, se Minimise impact on wildlife. ha trabajado para evitar la pérdida de biodiversidad en las áreas de concesión:

- Installation of biological repellents, which inhibit the construction of nests of the rufous hornero / ovenbird (Furnarius rufus) in the crossbeams of the distribution network posts, which reduces the number of power outages and the risks of electrocution of the species. In 2021, 200 polyethylene-based biological repellents were installed and priority was given to installation on 50 posts (feeder sections) in the centre of the city of Porto Seguro-BA to test the technology.
- Installation of signalling mechanisms for transmission and distribution lines in order 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 wildlife in substations, such as protection of insulators, bushings and conductors, instalation of sound repellents and barriers to prevent animals climbing.

#### Goals



Mexico

## Combined cycle

#### Actions

At the Tamazunchale Combined Cycle Power Rescue and protection of fauna. Plant, a programme to scare away, rescue, and relocate wildlife is carried out prior to and during the works of the power plant projects. 989 animals were rescued, of which 34 belong to species with some category of protection, achieving 100% survival. The main specimens of wild fauna protected in this way in the Mexican thermal projects are birds, reptiles and small mammals

#### Goals



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

### **Onshore Wind**

#### **Actions**

At Venta III and Pier II, Iberdrola introduced a protocol Protection of birds and wildlife for halting wind turbines in the event of a collision. The protocol is in the review phase to include the new wind farms in Santiago, PIER IV, PIER B.

#### Goals



Rescue and relocation of wildlife at the Pier IV Protection of birds and wildlife wind farm facilities during the construction period in compliance with the Environmental Impact Statement. During 2020 and 2021, 108 specimens were relocated, including the ribbon snake, scorpion and lizard.







Actions In all the photovoltaic plants in Mexico, rescue and Wild fauna protection. relocation of birds and wildlife is carried out during the

operational phase. During 2020 and 2021:

- Santiago Photovoltaic Plant. 59 specimens were relocated, including the Querétaro Dusky Rattlesnake, Western Diamond Rattlesnake, , Serrana Rattlesnake, Gray Rattlesnake and Mexican Black-tailed Rattlesnake
- Hermosillo Photovoltaic Plant. More than 70 specimens were relocated, including Sonoran ragged-chested tortoise, desert toad, royal chameleon, gila monster, long-nosed snake, diamond rattlesnake, desert blonde tarantula and chicotera snake.
- Cuyoaco Photovoltaic Plant. 88 specimens were relocated including Mexican pygmy rattlesnake, Scorpion, Malinche mouse, Cincuate, Mexican pygmy rattlesnake.





## Portugal

### Hydroelectric Generation

#### **Actions**

#### Goals

Actions to protect terrestrial and aquatic fauna and birds Fauna protection . were carried out during the construction phase of the Támega hydroelectric complex:

- Installation of shelter boxes for Chiroptera
- Restoration of spawning grounds
- Restocking with trout
- · Protection of Chiroptera colonies in caves and galleries
- · Reproduction and scientific-environmental dissemination on river mussels (Margaritifera margaritifera). These mussels need to spend their larval stage in the gills of fish such as salmon or trout to reproduce. For this reason, trout that had previously been infested with larvae were released into the river, thus helping the reproduction and dispersal of the river mussel.
- · Improvement of aquatic ecosystems with the creation of 18 ponds in 2021.
- · Improvement of aquatic systems with the adequacy of slow zones. In 2020, 5 sites were built on the Louredo and Poio rivers.
- Creation of 9 Micro-habitats for herpetofauna in 2021
- Creation of 24 microhabitats for threatened forest invertebrates
- Up grade of *Phengaris alcon* butterfly habitat.



Larvae, specimens and Salmon



#### **Actions**

Periodic monitoring of fauna/avifauna in the wind Raptor protection. farm area to record any injured or dead species. In the event of an incident, it is reported and the animal removed so that birds of prey are not attracted to feed near the wind turbines.

Installation of bird protection systems at the **Kerveros** and Sarakatsaneika wind farms. They include cameras and loudspeakers to detect the approach of any bird and discourage it; or even stop the wind turbines avoiding possible collisions.

During 2021, the acquisition of systems for the Acquisition and installation of a species surveillance Mikronoros wind farm was completed, for installation system. in 2022.

Four units of HD camera systems for the detection of important bird species to be installed in the wind turbines.

In addition, the park has a loudspeaker system and stop control modules in the wind turbines to prevent bird collision incidents.

# France Offshore Wind

#### Actions

Project for the eradication of the American mink Eradication of the invasive species - American mink<sup>22</sup> (Neovison vison) from Tregor Island, to protect nesting birds and their eggs from this invasive species. It is divided into the following axes:

- · Eradicate the presence of the American mink on Tomé Island.
- Check the absence of the American mink in the Sept-Îles National Nature Park.
- Capture of individuals on the coast between Pe rros-Guirec and Penvénan for genetic analysis

22. https://ailes-marines.bzh/en/mesures/mesures-de-compensation/eradication-du-vison-damerique-sur-les-iles-du-tregor-cote-de-granit-rose/

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#### Goals



Goals



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## Offshore Wind Actions

Goals

These measures have been executed during 2020 and 2021. The compensation measure is part of the "Trégor-Gestion-Vison" programme, managed by the Fédération départementale des chasseurs des Côtes d'Armor, the Conservatoire du Littoral, the LPO, the municipality of Perros-Guirec, Lannion Trégor Communauté and Ailes Marines<sup>23</sup>.

Project to combat the predation of the black crow on seabirds. This measure, implemented since 2012, aims to limit the predation of seabird eggs by crows that tend to specialise in Black Guillemots and Kittiwakes. The Syndicat Mixte Grand Site Cap d'Erquy Cap Fréhel, an experienced operator of this practice, has been implementing this compensation measure on behalf of Ailes Marines since 2019.

This has resulted in an increase in the number of breeding pairs. All high-risk species reached an alltime high in numbers for Cape Frehel during the monitoring period.

**Kittiwake**: the recorded breeding population is at its highest level ever recorded with 305 breeding pairs (an increase from 87 pairs in 2019). The number of breeding pairs has increased almost constantly since the first crow control operations.

Guillemot de Troil: The results for 2019 are very encouraging, with more than 500 pairs recorded.

Razorbill: The demographic trend gives hope for a recovery of the population. Therefore, the 2019 population surveyed at Cap Fréhel stands at 52-55 breeding pairs.

Crested cormorants: Juvenile production has reached a record since the start of monitoring of Gregory "Slobirdr" Smith sous licence Creative Commons juvenile production (average 1.88 juveniles per breeding pair).

It is also worth noting the works on predation by the peregrine falcon. The implementation of this measure is a success and is paying off. The campaign was carried out in April and June 2020.

Combatting black crow predation on seabirds.



The Common Murre (Uria aalge)



#### Actions

Chiroptera and reduce the impact on local fauna applied in the parks Chambonchard, Herbitzheim, Plemy.

### **4.1.3.** Actions for the protection of flora and vegetation management

The Iberdrola companies carry out vegetation management and flora protection plans with the aim of conserving and promoting protected flora species, reducing impacts on the vegetation, minimising the risk of fire and applying the best practices for pruning and control of invasive species. In total, more than 128 actions aimed at vegetation management and flora protection were carried out.



## Iberdrola encourages photovoltaic plants to house a wide diversity of flora "



### Actions

#### Núñez de Balboa Photovoltaic Plant

Special attention has been paid to the conservation of the flora populations present in the place of installation.

· Creation of a Flora Reserve: During the construction of the plant, damage to orchids and daffodils was avoided by fencing off the area and avoiding the placing of infrastructure in this area. From an initial area of 2 hectares, it was finally extended to 7 hectares. In it, other species of flora will be preserved in addition to orchids, such as the species of the Anthyllis genus that will be introduced from the germplasm bank by technicians from the Extremadura government. This flora reserve is of great value for the conservation of genetic resources.

23. Ailes Marines is a Simplified Joint Stock Company (SAS), 100% held by IBERDROLA.

#### Goals

Plans to reduce the impact of collisions on birds and Reduce the risk of collision of birds and Chiroptera.

#### Goals

Protection of flora endemic to the peninsula



### Photovoltaic Plant

#### Actions

- Protection of Lavatera triloba. This perennial herbaceous plant, endemic to the peninsula, is home to the sight-beetle, also endemic. The beetle develops its entire life cycle in the Lavatera triloba. The growth area for this species has been marked and training has been given to maintenance personnel for its conservation.
- Action plan to promote the presence of the Marsilea Batardae fern in existing ponds. The studies carried out in 2021 did not detect the presence of this species, so a conservation plan is established to introduce it in collaboration with the Germplasm Bank of the Junta de Extremadura, who will provide the action protocols, seedlings and/or seeds, and will carry out the reintroduction with expert technicians.

In all photovoltaic plants, the impact on vegetation Improvement of vegetation diversity. is minimised and the regeneration and diversity of herbaceous vegetation is promoted:

- Earth movements are avoided and the direct driving of the posts is preferred to avoid making foundation trenches. This means that the impact on the original vegetation is minimal.
- · Non-use of herbicides and vegetation management with sheep. Sheep also allow fertilisation of the soil and dispersing of seeds, promoting the improvement of the flora. A study carried out by the University of Castilla la Mancha<sup>24</sup> on various photovoltaics installed on degraded soils shows how the number of plant species increases in the environment of the photovoltaic plant. Correct management of sheep allows the recovery of the soil and the development of the cycle of agricultural birds, respecting areas for their nesting in the months of April, May and June.

#### Goals







#### Actions

The forest fire prevention plan has been put into Protection from forest fires. practice in Iberdrola's electricity distribution and transmission areas of action. Different actions are carried out annually on existing infrastructures, vegetation management, design and construction of facilities, and awareness and information.

During 2021, the plan has been 100% completed and the number of fires has been reduced to 83% of those that occurred in 2020.

In total, 67km<sup>2</sup> 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.

FLASH Project. This project consists of a detailed Protection of vegetation and reduction of fire risk. 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.

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.

# Hydroelectric Generation

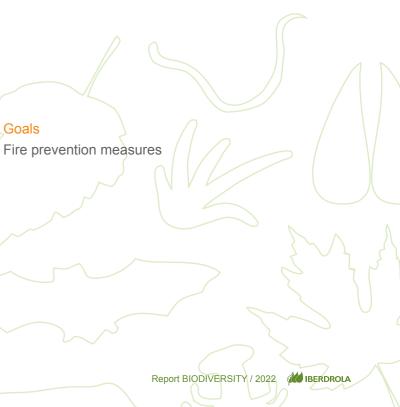
#### Actions

In 2020 and 2021, various actions were carried out Fire prevention measures to clean and clear vegetation in the surroundings of the hydroelectric power plants, dams and canals, implementing, in some of them, measures to prevent the growth of pyrophyte species.

24.

Report on environmental impacts associated with the construction of photovoltaic solar plants in La Mancha".- UCLM, ETSIAM, IIER.

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## United Kingdom

## **Onshore Wind**

#### **Actions**

Grassland management is carried out in locations Grassland management. where potential benefits are identified in improving grazing habitat, which is important for both birdlife and livestock species.

In 2021 management activities were carried out at Beinn Tharsuinn and Lynemouth windfarms. This included ditch maintenance at Beinn Tharsuinn and reseeding pasture at Lynemouth.

Grazing management was undertaken at 13 sites to promote the recovery of habitat and vegetation damaged as a result of overgrazing, especially on sensitive peatland habitats.

In 2020-21, the control programme for the eradication Invasive species control of invasive species in three wind farms continued. The regenerating non-native conifers were removed by hand at the Whitelee and Black Law wind farm, while Santiago grass was removed from the Carland Cross Habitat Management Area.



#### **Actions**

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Energy Networks promotes the creation of green ne- Creation of green networks bringing enhanced biodiversity, tworks developed in partnership with local communi- more urban greenspace and active travel routes. ties and interested parties 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.

#### Goals



### Goals



## **Networks**

#### Actions

Development of an "Integrated management of vege- Minimise impact on flora tation" programme 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.

The companies also have programmes to prevent the Removal of invasive species spread of invasive species. Preliminary studies on invasive species are carried out for new projects and post-construction checks are carried out.



#### **Actions**

Annual vegetation management and monitoring of Vegetation management noxious weeds occurs at Avangrid Renewables' operating solar plants. It includes actions such as harvesting and the general supervision of invasive species.

# Brazil

During the construction of the projects, the flora species that were to be eliminated have been relocated, including the sowing and planting of various species to minimise the impact and restore the existing ecosystems. During the operation phase, monitoring and maintenance measures have been carried out to ensure the establishment of the populations in the ecosystems.

### Hydroelectric Generation

### Actions

 $\mathcal{L}$ 

Telespires hydroelectric power plant Germplasm rescue programme at the Teles Pires Genetic conservation Hydroelectric Power Plant. There is a nursery for native

seedlings for reforestation in Teles Pires.

Acciones de recuperación forestal y gestión de la regeneración natural

Goals

Goals

Goals

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## Hvdroelectric Generation

#### **Actions**

#### Baixo Iguaçu hydroelectric power plant

in affected areas. The objective is the conservation proliferation of aquatic plants in reservoirs. of the germplasm and, therefore, of the botanical biodiversity of the affected area. In the initial followup activities, of the 29 relocation zones, 27 were supervised. In total, monitoring data of 541 specimens was collected belonging to 9 families represented by 37 taxa.

Relocation, isolation, implantation and follow-up actions of epiphytes in Permanent Preservation and implantation Areas.

Isolation of Permanent Conservation Areas and implementation of firebreaks for the protection of forest areas against fires.

Management of macrophyte proliferation in reservoirs. In addition, preventative control and elimination of macrophytes so as not to hinder the multiple uses of the reservoir.



#### **Actions**

- Flora rescue programme in the areas affected by Rescue and relocate flora species and give guidance on the vegetation, collecting the largest possible num- the correct procedure for the suppression and pruning of ber of viable seeds of the species, relocating the vegetation. rescued epiphytes/hemiepiphytes and guaranteeing a satisfactory success rate in the rescued specimens relocation activities.
- · Performance of two orientation campaigns on activities and procedures for the collection, rescue and relocation of plant species. The goal of the programme is to establish a suitable and safe path for the local flora at the time of relocation and to mitigate any possible damage to the species at the time of collection or even the risk of fire at the site.

#### Goals

Goals

Rescue of flora and genetic conservation

Flora rescue programme, with relocation of species Protecting forest areas from fire and controlling the



#### Actions

- getation.
- Plant Germplasm Rescue Programme: fruit and/or seed collection, rescue and transplantation of epiphytic and terrestrial species and marking of tree species in some state of threat.
- Subsequently, a follow-up of the work performed was carried out.
- · Vegetation management actions and selective pruning on distribution lines to prevent trees from coming into contact with lines and pylons.
- Dissemination of good practices for the control of urban arborisation through the vegetation control guides of our distributors.
- the pre-bidding phase to define the most strategic activity areas routes, resulting in a lower volume of suppressed vegetation according to the biomes affected with the danger of extinction, launching cables with drones, overflights and engineering techniques (in the choice of towers and elevation of structures).



Cleaning the edge of the fence and the edges of the work to prevent fires and control invasive species

Mexico

 $\Diamond$ Combined cycle

#### **Actions**

The programme for the rescue, relocation and Rescue and relocate the flora species affected by the conservation of flora species that were affected by stripping construction of the facility. activities has been carried out at the Tamazunchale Combined Cycle Power Plant, as well as reducing and compensating for the effects on wild flora derived from the construction of the project. In 2020, 563 species have been rescued, and 280 have been relocated.

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#### Goals

• Survey of pylons to minimise the impacts on ve- Minimising contact of vegetation with lines and pylons; preventing accidents with trees.

Studies and use of technological resources during Disseminate best urban vegetation control practices in



Diversion of the rice field ditch to the outside of the construction zone

#### Goals

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## **Onshore Wind**

#### **Actions**

Maintenance continues at the Pier IV, Pier B Maintenance and reforestation and Santiago wind farms, carrying out individual maintenance actions on flora. The plan includes monitoring and relocation of plants to cover a survival rate of 80% of the plants rescued over a 5-year period.

#### Goals



## Portugal

### Hydroelectric Generation

#### **Actions**

The following actions to protect the flora and vegetation Protection of flora and vegetation management management were carried out during the construction of the Tamega Hydroelectric Power Plant:

- · Rehabilitation of the Arnica montana, Drosera rotundifolia and Sphangum spp peatland, follow-up in 2021.
- Creation of populations of Armeria humilis
- · Protection and improvement of the populations of Verónica micrantha, Queroides arenaria, Sedum pruinarum, Narcissus triandrusand Narcissus bulbocoidum

### **Photovoltaic Plant**

#### Actions

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At the Hermosillo Photovoltaic plant, maintenance Reforestation maintenance actions continue to be carried out in a reforestation of more than 10 ha.

Flora rescued and relocated to the **Santiago** Rescue and relocation of wild flora. Photovoltaic Plant has been maintained with the aim of protecting and mitigating impacts on species.

#### Goals



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

In the construction of all projects, as well as in the processes derived from their operation, there are physicochemical parameters of the water and soil environment that are evaluated and management actions are carried out aimed at maintaining a quality habitat capable of hosting resilient ecosystems.



#### Actions

Several years ago, the company launched a plan To prevent pollution in soil and underground water for the construction or repair of oil collection tanks in substations and pits/buckets to prevent oil spills in transformation centres. Between 2020 and 2021, 38 warehouses have been built and repaired. Currently all new ST/STRs are built or fitted with tanks and CTEs with pits/bunds for oil collection.

Within the contaminated land programme that includes land recovery, 707,235 kg of contaminated land were managed.

#### Goals



Goals

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#### **Actions**

Construction and waterproofing of basins, and fauna. replacement by dry transformers, decontamination of oils and equipment with PCBs, reinforcement of septic tanks, oil separators, replacement of lubricating oils with less polluting substances, maintenance and improvements in leak collection and containment systems, as well as the acquisition of anti-spill kits or absorbent elements to prevent impacts on the ground and the water environment.

## Thermal Generation

#### **Actions**

Creation of an environmental emergency room in the Environmental emergency room to reduce action time water treatment plant at the Arcos Combined Cycle Power Plant with all the necessary material to attend an emergency, i.e., shutters, sepiolite, oil vacuum cleaner, etc. This action is important to reduce action times in case of emergency because all the means are in a localised area.

Lada Thermal Power Plant. Progress on the dis- Disposal point removal mantling of the discharge point that is already out of operation.

### Nuclear power generation

#### **Actions**

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Almaraz Nuclear Power Plant. Actions to improve Improvements in soil contamination prevention systems. the soil contamination prevention systems with conditioning of the reserve transformer storage area.

#### Goals

Activities aimed at the prevention of pollution: Prevention of pollution and its possible impacts on flora

#### Goals

Goals

# United Kingdom Offshore Wind

#### **Actions**

ScottishPower Renewables through its East Anglia Watercourse improvement. ONE Offshore Wind Farm carried out actions to protect the water environment by removing excess build-up of sand from the Fynn River with the aim of improving the watercourse bed and water quality.

The action was carried out in collaboration with official bodies and the sand was removed using an excavator to expose the gravel riverbed. In addition, East Anglia One donated fencing, stone and wood posts to the Environment Agency and wildlife groups for use on local projects.

## **United States Networks**

#### Actions

A stormwater pollution prevention plan is prepared for Protection of water quality . 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.

# **Onshore Wind and Solar**

Actions

gearboxes 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 requirements for transportation and use 25.

25. United States Environmental Protection Agency

#### Goals



Removal of sand to improve the watercourse of the Fvnn river

#### Goals

#### Goals

Oils are used in the wind turbines to lubricate Used oils repurposed to heat City of Van Wert buildings

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## **Onshore Wind and Solar**

#### **Actions**

#### Goals

Storing waste oils is an important responsibility. Our Waste oil storage efficiency. 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 minimising oil filter waste, the construction of a double wall, the installation of a sealed oil level valve and provisions for venting, options to remove oil from bottom or top and elimination of need to transport bin.

# Brazil

The Neoenergia Group is committed to the respect and protection of natural resources and is acting to protect the indirect impact 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 undertaken by the Neoenergia Group to avoid indirect impact 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.
- Programmes and actions for the restructuring of vegetation cover at the facilities, to prevent the formation of erosive processes and silting up of water courses and drainage systems.
- Follow-up and actions to restore slopes and embankments around the reservoirs.
- Solid Waste Management Programmes that ensure the correct disposal of waste generated by Group companies.

Acquisition of containment barriers, absorbent blankets and ropes, skimmer to collect the oil in the water, selfsupporting tank and motor pump.

Durante el período, se adquirieron kits de respuesta a emergencias para posibles derrames de petróleo en el embalse en todas las centrales hidroeléctricas, así como formación para los equipos técnicos locales sóbre el uso correcto de las herramientas adquiridas.





Collection point for common waste, in charge of the public waste collection service of the municipality.



Environmental mitigation kit present in the service area. Registration: Dossel

IBERDROLA www.iberdrola.com Neo Coelba waste plant



## Mexico

### **Onshore Wind**

#### **Actions**

#### Target

Target

In the renewable facilities we have Waste Management Comprehensive waste management programme to programmes with the objective of minimising the risks mitigate impacts. of contamination to the soil, water and groundwater tables (where applicable), through specific actions that are developed in the different stages of the project.

### Combined cycle

#### **Actions**

The Waste Management Programme was carried Comprehensive waste management programme. out at the Tamazunchale Combined Cycle Power Plant, with the objective of minimising the risks of contamination to the soil, water, and groundwater table, through specific actions that are developed in the different stages of the Project.



## 4.2. Assessment, knowledge and research

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 value.

## Continuously identify, quantify and assess the impacts and dependencies of the Group's activities on natural capital with a focus on biodiversity throughout the life cycle of the facilities by promoting research and improving knowledge of the ecosystems in the areas where it operates.

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 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.



#### **Actions**

#### **Perseo Challenges:**

The "PERSEO" international start-up programme encourages the development of future technologies in the electricity sector with a focus on sustainability. Every year, an average of ten challenges are launched with the aim of identifying proposals with solutions that make it possible to improve operations and minimise environmental impact. This tool seeks to support innovation and improve the sustainability of the energy sector. The selected projects are provided with the necessary technical and financial support to prove the success of these pilot projects. In addition, Iberdrola offers companies the opportunity to expand the scope of the solution through commercial agreements or direct investments through PERSEO in the company.

#### Goals

Support for the development of technologies

In the Coexistence of agriculture and livestock with the development of photovoltaic plants<sup>8</sup> challenge launched in 2021, the company received 110 proposals from 32 countries, of which it has selected four companies with which it will design projects in various areas: Irrigated crops, viticulture, fruit trees and cattle welfare.

In the challenge to avoid bird collisions on our lines<sup>9</sup>, it has selected two innovative solutions for the placement of anti-collision elements on its overhead distribution lines: Drone by Drone and Highline Division (HLD). Both base their solutions on the use of drones for the installation of anti-collision devices for the protection of birds in aerial distribution networks. The objective is to improve the safety and efficiency of this type of operation and the continuity of the supply service.





 Methodology of the Instituto Life. Iberdrola Metrics to measure net balance in biodiversity. participated in the Pilot project to adapt the Instituto Life's Biodiversity Balance Methodology for companies to the European context. In addition, it was a member of the technical evaluation committee for the adaptation of the Instituto Life's methodology to calculate the balance of biodiversity to the European context. Iberdrola participated in this pilot with three facilities: one hydraulic, one solar and one combined cycle. Participation in this project contributed to the testing and calibration of the tool and methodological review for its adaptation to the European context.



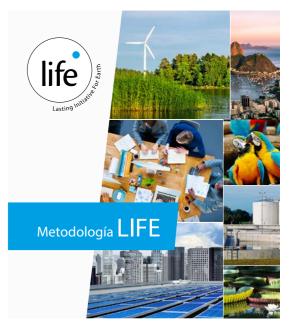
### In this period, Iberdrola Spain has carried out more than 430 knowledge and research actions.



#### Actions

Iberdrola contributed with the evaluation of two of its Study to improve biodiversity and connectivity in buildings, the Training Campus and the EIMA in Madrid industrial buildings to the LIFE BooGI-BOP1 project (LIFE Boosting Urban Green Infrastructure through Biodiversity-Oriented Design of Business Premises) of the EU. This project promotes the design and management of business and industrial environments taking biodiversity and nature into account. Biodiversity-Oriented Design of Business Premises (BOP) provides solutions for the configuration of permanent or temporary habitats for local fauna and flora, as well as for the creation of biological corridors or green infrastructures.

https://www.iberdrola.com/sala-comunicacion/noticias/detalle/iberdrola-selecciona-proyectos-internacionales-impulsar-convivencia-agricultura-ganaderia-plantas 9 https://www.iberdrola.com/inhovacion/programa-internacional-startups-perseo/concurso-startups-dispositivos-anticolision-redes-areas-distribucion



#### Goals



The Training Campus (Madrid)

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#### **Nuclear Power Generation** $\bigcirc$

#### **Actions**

Goals

NPP Almaraz I and II Continuation of the bird To characterise the birds in the SPA of the adjacent monitoring programme for the characterisation of reservoir the structure and dynamics of the Bird Community of the Arrocampo Reservoir in collaboration with the University of Extremadura, as part of the Almaraz ATI project.

Almaraz I and II NPPs Ecological monitoring of Characterisation of the limnological and ichthyological the Arrocampo and Torrejón reservoirs. Monitoring Programmes to annually characterise the condition of the reservoirs in terms of limnology and ichthyology.

state

NPP Almaraz I and II. Bird and Chiroptera Strike Tracking of birds and Chiroptera Surveillance

Cofrentes NPP. Hydrobiological programme. Monitoring of aquatic systems "Monitoring of aquatic systems in the surroundings of Cofrentes NPP" in order to establish and control their impact on the environmental and biological conditions of the Embarcaderos reservoir, through the analysis of hydromorphological, physicochemical and biological quality indicators.



NPP Trillo. Monitoring of the potential affectation of To protect fish populations and eliminate invasive the Trillo Power Plant to the Tagus River and larval species monitoring of the zebra mussel and macrophyll population

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### Combined cycle power plants

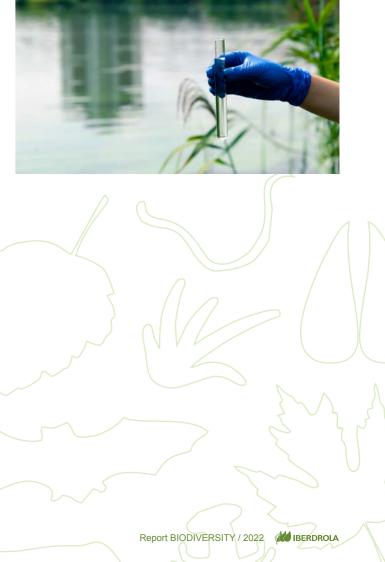
#### **Actions**

CC Aceca. Ecological study on the river Tagus near To gain a greater understanding of the ecological condition of the river Tagus 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.

CC Escombreras and Tarragona Power. A To prevent repercussions on underground water groundwater control network (piezometers) provides for six-monthly measurements to ascertain the behaviour of the aquifer and the substances present in it.

CC Escombreras. Collaboration with the Govern- To protect fish populations and improve water quality ment 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 BEN-THOS indexes (on the presence or absence of species of macroalgae indicating pollution). In 2020-21, monitoring of the receiving environment, temperature control in intake and discharge, sediment control, draft control and monitoring of the outfall are carried out through the contract signed with LABAQUA.







#### **Actions**

"Coexistence of birds and power lines". Performance prioritisation methodology. of a global study to reduce the impact of the i-DE electrical distribution network on birds, especially focused on the optimal reduction of mortality from electrocution in said network.

In the Improvement of the Air Network project, a Technological solutions to reduce impact on birds 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. .

Follow-up actions were carried out on the possible Monitoring for the protection of birds impacts of birdlife on the electricity distribution facilities.



#### **Actions**

of the annual Environmental Wildlife Monitoring programme. Avifauna and/or Chiroptera censuses and collision control are carried out in 114 parks and 18 lines.

Study on the Golden Eagle around the Maranchón Monitoring for protection of the golden eagle 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. Radio monitoring of the movements of the Golden Eagle for the use of space study. The data downloaded from the GPS of the two radio-tagged specimens, such as flight height, speed and direction, provide specialised biologists with very useful information to understand more about these raptors, their behaviour and their movements in their territory throughout the year. Analysis of the interaction of the species with wind farms.

#### Goals

Collaboration agreement with the CSIC for the Technological solutions for impact reduction and

#### Goals

Environmental surveillance programme. Continuation Monitoring for protection of birdlife and Chiroptera



Maranchón wind farm complex (Guadalajara). Throughout 2020, work was carried out to review and clean shelters, monitor occupation and take nocturnal samples using listening stations.

Studying populations of Griffon Vultures in Albacete Monitoring for protection of the griffon vulture and how they interact with wind farms. It includes a bibliographic study, field censuses in different periods, prospecting for mortality and the preparation of a report of conclusions. This study is carried out in collaboration with the University of Salamanca.

Monitoring of steppe birds, as part of the environmental Steppe bird monitoring monitoring programme of the El Carril and Alto de la Degollada wind farm. They include study of the habitat, monitoring and use of the space through censuses, detection, identification and location of injured fauna.

A study has been carried out in the area of the Study for knowledge of Chiroptera populations in Bolaños wind farm, in collaboration with the wind farms University of Salamanca, to learn about Chiroptera populations and their activity in wind farms. Due to the requirement for wind turbines to stop at night in the Bolaños wind farm to minimise incidents with Chiroptera, one of the objectives of the study has been to establish a methodology and a standard monitoring protocol for its application in those wind farms where it is required. In addition, possible mitigation measures have been studied to avoid the stoppage of wind turbines and, where appropriate, carry out a pilot test.

In 2021, the recordings were made in the months of greatest Chiroptera activity. The recordings have been standardised to provide comparable and useful data for the study.

Monitoring of Chiroptera populations in the Ballestas Chiroptera Protection and Casetona wind farms, with continuous ultrasound measurement for species census.

IBERDROLA www.iberdrola.com Monitoring use of space by chiropterans at the Monitoring for chiropterans Protection



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#### **Actions**

Goals

At the Núñez de Balboa photovoltaic plant, different Monitoring of bustards and other fauna population monitoring have been carried out in relation to fauna, birds and flora

- Radio-monitoring of four little bustards tagged in or around the project area, in collaboration with the Regional Government of Extremadura and the Universities of Porto and Lisbon.
- · Monitoring of fauna populations in case it is necessary to relocate animals to nearby Iberian lynx distribution farms. In 2021 it has not been necessary to relocate animals.

# Hydropower Generation

#### **Actions**

Esteban.

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aeruginosus) was carried out with the installation prevent possible impacts of cameras in the Embarcaderos reservoir to obtain a better understanding of its behaviour during the breeding season.

carried out periodically in all the basins, which help

Additionally, continuous pH, conductivity and

temperature monitoring sensors have been installed

in the Casoyo reservoir, and oxygen sensors in San

prevent possible impacts on the ichthyofauna.

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#### Goals

In 2021, a study on the Marsh Harrier (Circus Understand the behaviour of the Marsh Harrier and



Water quality studies and limnological monitoring are Monitoring of water quality





#### **Actions**

ScottishPower Renewables is committed to Peatland habitat monitoring monitoring of habitats over multiple years with monitoring frequency determined by habitat condition and time since treatment was implemented. In 2021, peatland habitat monitoring was carried out in five areas, with dip holes and vegetation being measured to provide habitat quality indicators to determine if future monitoring will take place and whether treatments have been successful or more restoration work is needed.

Hydrological monitoring was carried out at six of Hydrological monitoring to identify the restoration ScottishPower sites where peatland restoration success work was carried out. By monitoring the hydrological response of the peatland habitat, it is possible to see whether the restoration works have been successful. Degraded peatland habitats typically have a low water table, while peatlands in a favourable condition typically have a water table which constantly remains close to the surface. The results of hydrological monitoring are used to inform whether future restoration works are required.

ScottishPower carried out monitoring of tree Monitoring of tree planting planting works in 8 locations to ensure successful establishment of trees and inform whether further work is required. Monitoring was undertaken on an ad-hoc basis depending on what works have been carried out and degree of tree establishment, until trees are considered to be fully established. Based on the results of monitoring, future monitoring requirements will be programmed, and any necessary maintenance works undertaken.

#### Goals



Peatland monitoring carried out at Whitelees windfarm



Hydrological monitoring



Young saplings at Mark Hill windfarm

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### **Offshore Wind**

ScottishPower Offshore Renewables is a founding member 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 phase focused on ornithological issues. The pilot phase 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. Partners have agreed to continue the OWSMRF programme beyond the pilot phase and will target other key seabird species for the UK Round 4 and ScotWind projects. In addition, monitoring is carried out for all Offshore projects from preconstruction surveys through to operational monitoring plans.

#### **Actions**

#### Goals

ScottishPower Renewables is committed to Breeding birds, wintering birds and flight activity on monitoring birdlife in different sites, including general breeding bird surveys, as well as general surveys to determine breeding success of eagles and barn owl, usage of targeted areas by grouse, geese and swans, as to assess winter activity. The results of monitoring indicate that bird activity levels are generally the same during the operational phase as they were prior to windfarm construction. However, these levels do not tend to contain any species of importance because it avoids locating wind farms in areas that are of high interest to birds, which is a factor considered during project planning. The monitoring program evaluated 20 avifauna surveys at 15 different sites.

Anglia ONE offshore wind farm:

· Research to better understand the impacts of offshore wind farms on the harbour porpoise population. Underwater recorders collected noise data before, during and after the foundation installations with the aim of informing and discussing the true impacts of pile driving on the harbour porpoise. The data were then assessed by academics from the Scottish Association of Marine Science and supported by Aarhus University and the Sea Mammal Research Unit, the institute that developed the two main population effect models.

windfarm sites



Jack Snipe

Various studies have been carried out on the East Research on acoustic detection for impact analysis



Acoustic detection equipment Photo credit: ©OSC

- on the reefs of the Sabellaria spinulosa worm. The focus of pre-construction surveys was to specify areas of high-quality reef to plan micrositing around them during construction, particularly, where construction works had a direct impact on the seabed (installation of foundations, cables and scour protection, and the use of jack-up vessels). A monitoring plan was then drafted with the objective to confirm the extent of potential impact, if any, post-construction by carrying out a follow up survey of the known locations of Ross worm reef.
- Study of the possible nesting sites of the marsh Research for protection of the Marsh Harrier harrier (Circus aeruginosus). The objective of the research is to confirm the reproduction status of the species throughout the season by carrying out monitored visits for data collection and analysis. Research pre-, during- and post-construction illustrated that marsh harriers continued to successfully nest and rear young near to the project throughout works, with mitigation measures implemented by the construction team as required such as exclusion zones and ongoing ornithological review.

The West of Duddon Sands Offshore Wind Farm Species benefitting: Whooper Swan (Cygnus cygnus) is located in the East Irish Sea, approximately 14 km from the Cumbrian coast. It is situated nearby four other operational wind farms: Barrow, Walney, Walney Extension and Ormonde.

ScottishPower Renewables Offshore with Ørsted commissioned a voluntary GPS tagging study to determine the flight lines of a representative sample of Whooper Swans on their migration between northwest England and Iceland and in particular across the Irish Sea, in order to better understand their interaction with offshore wind farms.

This multi-year study involves the fitting of tracking devices to adult female Whooper Swans wintering in north-west England, enabling three-dimensional tracking of individual birds on their migration and their potential interaction with offshore wind farms.

• Evaluation of the possible impacts of construction Research on possible impacts on Sabellaria spinulosa during the construction phase.



Sabellaria spinulosa worm



Marsh Harrier (Circus aeruginosus)



A whooper swan with GPS tag. Photo credit: Richard Green.

In the first year of study, ten adult female swans at Martin Mere wetland reserve were tagged in March 2020 to follow their spring migration. The tags were programmed to collect and transmit data at a rapid rate in the vicinity of the west coast offshore wind farms, and less frequently outside this area. Thanks to the 2020 data, some conclusions can be drawn about whooper swan behaviour near offshore wind farms: most birds responded by climbing to a higher altitude when they were 9 km from the nearest turbine, and also remained more than 405 m from the nearest turbine at all times. Four birds returned to Martin Mere in autumn 2020 with two of the tags still functioning. Ten further GPS collars will be deployed at Martin Mere reserve during 2022.

### **United States**

Avangrid Renewables has a Wildlife Surveillance and Information System that includes voluntary and longterm monitoring of its operating assets 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.



#### **Onshore Wind and Solar**

Processes and practices to evaluate and minimise impacts and support regulatory compliance are guided by Avangrid R's Corporate Wildlife Plan and applied 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 mortality risk and effects on 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.

In addition, Avangrid Renewables implements a Wildlife Protection Programme that includes\_long-term monitoring, research studies, and risk management.

#### **Actions**

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Tier 1, Tier 2, and Tier 3 studies occurred at 46 All wildlife and habitat, with focus on birds and bats development facilities in 2020. Activities included agency consultation, pre-construction biological surveys, habitat characterization, and siting to avoid or minimize impacts to sensitive habitat or wildlife.

Construction monitoring for environmental compliance Wildlife during the construction phase of permit conditions and wildlife sensitive areas at the Bakeoven I Solar and Montague Solar photovoltaic installations, including surveys of raptor nests near construction areas and monitoring for erosion control.

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#### Goals

System that involves long-term monitoring at its operational wind and solar assets conducted by trained 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. This monitoring program was extended to include operational solar facilities in 2020. Monitoring was carried out in 67 facilities.

Environmental monitoring at onshore wind facilities Operational wildlife and Post-construction monitoring to assess revegetation, invasive non-native species, stormwater management, wetland restoration and water quality monitoring. In addition, bird and bat mortality studies have been carried out after the construction of eight wind farms.

Monitoring protected species' nests to evaluate Survey on breeding and nesting activity in and around operating wind facilities.

### Offshore wind

#### **Actions**

A mapping was carried out of the extent of eelgrass Study on seagrasses beds around Cape Poge before and after installation of the export cable to Vineyard Wind using visual observation, echograms, underwater video and still images, divers/snorkelers.

Survey conducted to document benthic habitat, Study of the benthic habitat and ichthyofauna benthic communities and a lancet fish population along the export cable route and within the wind development area before and after the construction and installation of Vineyard 1 using multibeam depth sounder, underwater video and collect. The survey is expected to last four years.

Carrying out high resolution monthly aerial surveys Marine life of the Renewable Energy Lease Area. The surveys cover seabirds, marine mammals, turtles and fish. The objective of the studies is to collect baseline data and evaluate the development of the project in relation to marine ecosystems. The surveys have found 3.131 individual animals since the research began.

Implements a Wildlife Monitoring and Reporting All wildlife, with focus on birds and bats

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### Hydropower generation

#### **Actions**

#### Goals

American eels, and tarpon.

and improvement measures to protect bald eagles,

#### **Upper Mechanicville**

Extensive impact analyses have been carried out NYSEG licence renewal in Upper Mechanicville in collaboration with various stakeholders as part of the environmental impact study for the 18.5 MW Upper Mechanicville hydroelectric project, located on the Hudson River, resulting in the granting of a new licence to NYSEG on 1 April 2021 to continue generating and supplying renewable hydroelectric power to NYSEG customers for the next 50 years.

Under the new licence, 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.



American Eel @HDR

As part of FERC's current operating licence for NYSEG Mill C Intake Trash Rack and Raker NYSEG's Molino C Hydroelectric Facility, effective 13 April 2006, NYSEG is required to replace or modify the existing inlet trash rakes with a clearance of one inch for fish protection.Installation of the new inlet trash rakes at Mill C was completed and the station

In addition to the intake rack replacement, the following upgrades were accomplished as part of the project:

returned to service in November 2021.

- i. The approach of the river into the intake structure was realigned such that biodegradable river debris can more easily pass through a sluiceway and downstream of the dam.
- ii. The existing sluiceway in the left dam abutment was deepened and widened to allow for larger biodegradable debris to pass downstream of the dam; along with new automated steel sluice gates.
- iii.Associated intake structural steel and concrete improvements were constructed to accommodate installation of a new mechanical hydraulic rackraker for cleaning of the intake trashracks during operation of the facility.

# 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.

The 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. Digitisation and innovation in monitoring and surveillance processes are part of Neoenergia's dayto-day operations.

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.

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### Hydropower Generation

Hydraulic generation companies develop a series of monitoring programmes that provide data of great importance for the development of our activities. Drones contribute to this work by providing simultaneous high-resolution images. Below, we will highlight some of the programmes carried out and these programmes are described in more detail in *Annex I Additional Information*:

#### Fauna Research and Monitoring Programmes

In general terms, the 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.

Studies and monitoring are carried out of ichthyofauna, avifauna, herpetofauna, bioindicator entomofauna, mastofauna and bats, as well as genetic research and conservation programmes (See the description of the programmes in *Annex I Additional information*):

Ichthyofauna Monitoring Programmes



Herpetofauna Monitoring Programme







The primate monitoring programme of the Teles Pires Power Plant has registered the presence of two new species of primates, namely: Alta Floresta titi monkey (*Plecturocebus grovesi*) and Schneider's marmoset (*Mico schneider*).

#### **Flora Monitoring and Research Programmes**

The flora monitoring programmes, in general, are aimed at verifying and controlling the forest succession of the remaining vegetation cover around the areas altered by the installation and exploitation of our power plants, and defining the best conservation strategies for the species of flora. These follow-ups, in addition to providing extensive cataloguing of great botanical utility, serve to identify the Permanent Preservation Areas (PPA). On the other hand, monitoring of relocated flora is also carried out to verify its adaptation to the new environment.

#### 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 physiochemical and biological constituents of the waters; and to define and monitor the evolution of the condition of water quality in the reservoir and all inflowing rivers.



It is the same in wind farms where a series of monitoring programmes are also developed that offer data of great importance for the development of activities. Below, we highlight some of the programmes carried out:

#### Fauna monitoring programmes

There are three different programmes dedicated respectively to the study of birds, Chiroptera and terrestrial mammals. The objective in all of them is to study the populations in terms of composition, richness, abundance, diversity, density and balance; describe the similarity in species composition and abundance between units; identify and characterise the environmental (climatic) variables that present possible links with the communities; verify the existence of seasonal presence patterns; characterise feeding and movement patterns near plants and develop analyses to assess communities in time and space.

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

The programme has activities focused on analysing the 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 for bats and birds.



#### Herpetofauna monitoring programme:

The actions developed aim to characterise the community of amphibians and reptiles in terms of composition, richness, abundance, diversity, density and balance; describe the similarity in the composition and abundance of amphibians and reptiles; identify and characterise the environmental (climatic) variables that present possible links with the amphibian and reptile community at the local level; and develop analyses that allow evaluation of the community of amphibians and reptiles in space and time.



#### Control and monitoring programme of erosive processes

This programme aims to identify, control and help manage the erosion process resulting from the activities carried out during the installation and operation of the wind farms, in order to control the environmental impacts and the repercussions on the infrastructures and buildings of the project. Using this data, a diagnosis has been made on the relationships of impact and dependency of these infrastructures in the operational phase with ecosystem services and biodiversity, which has provided detailed guidance on biodiversity and allowed the development of action plans to mitigate the risks for biodiversity, carried out on a voluntary basis.





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.

#### The Fauna Monitoring Programme in Transmission

Its main objective is to monitor the animals, characterise the composition, richness and conservation status of the target groups, as well as maximise knowledge about the changes in the populations and communities of the local fauna, threatened by the impacts derived from the execution of the project.

The action seeks to obtain samples of wildlife in the areas of influence of the transmission lines and to monitor them, considering in both processes their richness, abundance, degree of conservation and threat, and seasonality of the species for all phases of the projects (installation and operation), especially those that could be affected, threatened with extinction or visit infrequently.

These samples obtained in situ, after obtaining the necessary permits, allow the comparison of the parameters observed between the implementation and operation stages, making the data available to scientific collections.



Callithrix penicillata (black-tufted marmoset) Xerimbabo species observed during monitoring of the fauna. Registration: MRS Ambiental

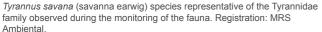




Specimen observed in the Camera Trap installed during the monitoring of the fauna. Registration: MRS Ambiental

Chiropterofauna specimen captured in a mist net during wildlife monitoring. Registration: MRS Ambiental.







Tolypeutes tricinctus (three-banded armadillo) representative of the order Cingulata observed during the monitoring of the fauna. Registration: MRS Ambiental.



Leptodactylus troglodytes (burrowing frog) new species observed during fauna monitoring. Registration: MRS Ambiental.



Guira guira (pirincho) representative species of the Cuculidae family observed during the monitoring of the fauna. Registration: MRS Ambiental.

located in a wetland system in the southern strip of Estuary in wetland system Tamaulipas in actions related to the Altamira III and IV Combined Cycle Power Plant.



#### Actions

Four season bird and Chiroptera watching programme Monitor birdlife and Chiroptera in the Pier II, PE Santiago, Venta III, PIER B and PIER IV parks and in the spring and autumn periods in the Bii Nee Stipa, Dos arbolitos and Ventosa parks.

Flora and fauna monitoring programme and mainte- Fauna and flora monitoring nance of flora relocation zones.

#### Distribution wildlife monitoring programme

Based on the mapping of the clusters of incidents by animal class in the distributors, the regions with the highest incidence with the identified classes will allow data to be broken down, making it possible to monitor and supervise the *clusters* of identified fauna. This study also helps in the decision-making process for new technologies, which will be applied in the most critical regions of the animal class.

For projects that are already underway, Key Performance Indicators (KPIs) are used, which support assessment of stocks and decision-making on possible corrective actions. These indicators are analysed after the implementation period, with the necessary time for data validation by the operational performance management area and analysis by the sustainability area. In this way, the KPIs can be evaluated from an environmental and operational point of view.



#### $\left| \right\rangle$ **Combined Cycle Power Plants**

#### **Actions**

Goals

Measuring environmental indicators of marine biota Preservation of marine biota (nekton, plankton) in the marine ecosystem adjacent to the Baja California combined cycle power plant.

Photovoltaic Plant

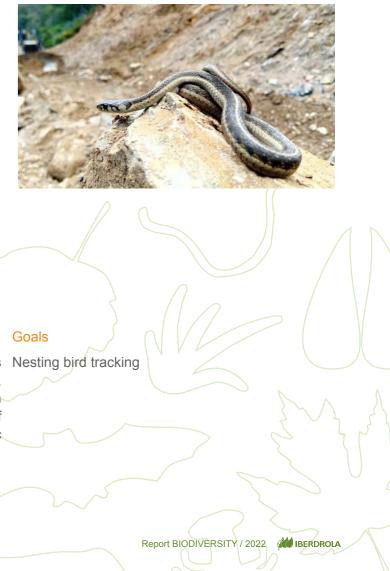
Italy

#### Actions

Annual monitoring of nesting and wintering birds Nesting bird tracking is carried out in the spring and winter seasons, starting from the season prior to the construction of the photovoltaic park, according to the type of environment of the Montalto di Castro photovoltaic plant. The first study was conducted in 2021.

IBERDROLA www.iberdrola.com Monitoring of parameters in the Garrapatas Estuary Monitoring and setting of parameters for Garrapatas







#### **Actions**

IBERDROLA

www.iberdrola.com

Goals

Bird and bat monitoring was conducted at the Bird and bat monitoring Bodangora, Capital, Lake Bonney, Walkaway and Woodlawn wind farms.

In 2021, a major wildlife and habitat survey was Study of fauna and habitats conducted at an arboretum near our Bodangora wind farm in New South Wales.

The habitat is of particular interest to birds and bats, as it is an ideal breeding habitat. One of the key landscape features for many local bird and bat species are hollow logs, as they provide an ideal nesting and breeding habitat. In addition to the habitat, the presence of different species was studied, and in particular the 10 identified as being of special importance for the wind farm, due to their rarity or their importance to the local Wiradjuri people, the traditional owners of the land. The 10 species consist of six birds and four Chiroptera: wedge-tailed eagle, superb parrot, Australian king parrot, brown treecreeper, little lorikeet, grey-crowned babbler, southern woodland bat, yellow-bellied sheath-tailed bat, Gould's bearded bat and striped free-tailed bat white. Overall, 64 different bird species were identified.

The group also conducted a nightly census in search of frogs. Some frog species could be identified visually and others acoustically.

As a result of the field study, Iberdrola Australia has initiated a programme to establish artificial nests that can be used to supplement existing tree holes to increase bird numbers.









#### Actions

nesting of the golden eagle (Aquila chrysaetos) or any other important bird species in the construction area and ensure that there were no impacts.





Monitoring to record porpoise activity around the Porpoise monitoring Wikinger Wind Farm operating site, using Click Acoustic Detectors (C-PODs)

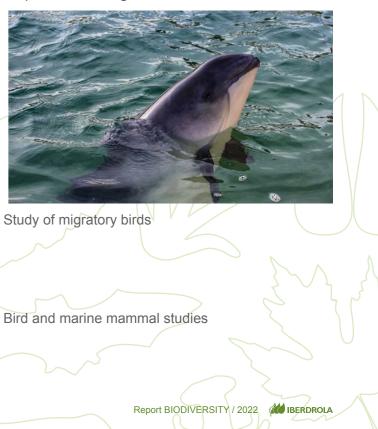
Studies of migratory birds based on sightings during Study of migratory birds the day and radar at night. This collects important data on the distribution, abundance, flight altitudes and habitat use of migratory birds, for when species conservation actions are required.

In the Cluster Westlich Adlergrund area, aerial Bird and marine mammal studies surveys are carried out to determine the abundance and distribution of seabirds and marine mammals.

#### Goals

Monitoring and censuses to study the possible Monitoring for the protection of the golden eagle





### France



#### **Actions**

Monitoring of breeding bird colonies present in Monitoring of breeding bird colonies the Bay of Saint-Brieuc. To achieve this, actions complementary to those already existing will be carried out at the Bréhat, Plouha, Verdelet, Cap Fréhel and Cézembre plants, including studies in all phases of the project. Three types of monitoring will be carried out:

- · Classic monitoring (GISOM) for species about which little or nothing is known.
- Scouting to identify previously unknown nesting areas.
- · Drone monitoring to get closer to species that cannot be approached with classic censuses.

Follow-up in all phases of the alcid breeding projects Monitoring the dispersal of Alcidae chicks to collect information on the dispersal process of adults and their offspring in the sea.

The objective of monitoring marine mammals and Bird and marine mammal monitoring birds is to determine the impact of the works and the operation of the wind farm in the Saint-Brieuc Bay on these groups. This monitoring will also help improve local knowledge.

Censuses are carried out in two ways:

- · Visual tracking using boats in which two observers, each covering one side of the boat, focus on a range of 300m.
- Aerial surveys in which monitoring is carried out by transects and in which high definition videos are subsequently analysed.

#### Goals



Scientific campaigns to monitor fishing resources Monitoring of fishing resources were carried out with the aim of evaluating the impact of the construction and operation of the wind farm and its connection with the main fishing species in the Bay of Saint-Brieuc. Several species are monitored inside or outside the OWF (Bênticodemersal, Scallop, Buzio, Crab-Aranha, Bivalvo).

Monitoring of migratory routes in the inner part of the Monitoring of migratory routes Saint Brieuc Bay and evaluation of possible changes in the behaviour (routes, flight altitude) of seabirds due to the presence of the project.



#### **Actions**

Monitoring of birds and bats carried out in Soeurettes Bird and bat monitoring and Plemy throughout the year.

Monitoring of flora, fauna and soil in the "wet area" Flora, fauna and soil monitoring that was previously restored in Plemy.



### **4.3.** Collaboration with stakeholders to enhance biodiversity

**66** Collaborate with Stakeholders, considering their needs and expectations in terms of biodiversity and participating in projects to improve biodiversity and to protect and respect animals.

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.).

### 4.3.1. Iberdrola Global

#### Commitment and Corporate Alliance 1t.org

Iberdrola has entered into a corporate alliance with the platform **One Trillion Trees** for the conservation and promotion of biodiversity in the development of clean energy, acting responsibly with nature as a source of sustainable development.

In 2020, Iberdrola launched the **Iberdrola Tree Programme**, in which we commit to promoting the planting of 20 million trees by 2030. In this programme we have focused on three objectives: Preserve the natural heritage through the restoration and compensation of habitats affected by the occupation of the territory by our activities; Reverse the loss of forests through the implementation of afforestation and reforestation projects that regenerate natural ecosystems, beyond the areas affected by our activities; and, enhance the social value of nature through partnerships, research and awareness.

#### **Biodiversity & Industry Collaborative Platform**

Iberdrola was part of the Biodiversity & Industry alliance together with Titan Cement, Engle, GSK, PMI, International, Ipsen and Solvay to work on tools that help integrate biodiversity into decision-making. As a result of this work, a Reference Framework was developed to integrate biodiversity into decision-making and help companies prioritise the drivers of biodiversity loss in a project.

**Biodiversity & Industry** Collaborative Platform



#### **Business for Nature**

Iberdrola has joined the Business for Nature platform where more than 560 large companies and international organisations come together for the first time to urge governments to adopt ambitious nature policies to reverse the loss of biodiversity.

This platform has subscribed to the Declaration of Leaders for Nature, which has been signed by more than 70 Heads of State and Government from around the world. This proposal has been presented within the framework of the first Summit on Biodiversity held at the UN General Assembly in 2020 under the slogan 'Urgent action on biodiversity for Sustainable Development'.

The declaration brings together a 10-point action plan to step up the global ambition for biodiversity and reaffirm its commitment to international cooperation and multilateralism as the only way for the world to respond effectively to current and future global environmental crises.

4.3.2. Spain

#### Convive programme

Iberdrola launched the Convive programme in 2021, a continuous improvement programme that integrates all the initiatives and alliances with the aim of drawing up action plans to improve the adaptation of Iberdrola's renewable projects to the reality of local communities and to the demands of Biodiversity and environment.

CONVIVE

evaluated.



The work carried out was published in the document Integrating Biodiversity in Business – A blueprint and in The Five Steps of the Biodiversity Risk Scan, A framework to prioritise risks in business projects.



The main initiatives in the actions carried out in the CONVIVE Programme are intended to contribute to the economic development of local communities, and the protection and enhancement of biodiversity at the installations. Listening to the needs of communities, possibilities for collaboration are Example of coexistence are the solar plants in Spain where the use of the generated ecosystem services is promoted in order to drive local employment in rural areas:

- · Use of livestock resources. Through extensive sheep farming
- · Beekeeping. Beehives are placed in solar plants and "ecological solar honey" is generated
- Promotion of cultural services and generation of knowledge.

#### "Filomena"

Iberdrola, through its foundation in Spain, has signed an agreement with the Madrid City Council, committing to the protection of biodiversity and the environment. Thanks to this donation, we collaborated in the reforestation actions in the parcels of land classified as green areas and municipal ownership previously determined by the City Council.

Iberdrola and the Madrid City Council intend to collaborate in the achievement of a prevailing public interest, such as the protection of the environment and the promotion of biodiversity in the urban area and which, in this case, takes the form of the activity of tree planting in the municipality of Madrid.

#### 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.

"Measuring what matters. Natural capital impacts and dependencies of the Spanish energy sector".



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

#### Collaboration with LIFE Projects within the framework of the Aerial Network Improvement Project

Within the Improvement of the Air Network 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.

- lines, thus minimising the chances of electrocution by perching on them.

#### Tagus International Natural Park

Habitat improvement project in the Tagus International Natural Park<sup>11</sup>. 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.

#### **Migra Project**

Fundación Iberdrola España has been collaborating for ten years with the Spanish Ornithological Society, SEO/ BirdLife in the Migra Project, aimed at studying the movements of migratory birds. / 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

11. https://www.fundacioniberdrolaespana.org/webfund/corporativa/iberdrola?IDPAG=ESFUNACTNOT18&URLPAG=/gc/prod/es ES/contenidos/html/actualidad taiointernacional18.html#p3.

 AQUILA a-LIFE programme: an innovative pilot-project financed by the European Union whose objective is the conservation of the Bonelli Eagle, a threatened bird of prey, and which aims to teach the young of this species to avoid perching on electrical towers and thus minimise the risk of electrocution. Specifically, some low-voltage cables, known as "electrical shepherd" have been installed next to a cage that serves as a refuge, and in which five Águila Bonelli chicks and one adult live. When the young settle on the crosshead of the towers they receive a shock and it is expected they will learn to keep away from supports and electrical

• MONACHUS Project, recovery of the cinereous vulture (Aegypius monachus) in the Iberian Mountain Range.



The little bustard (Tetrax Tetrax).

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.



Currently, the MIGRA programme has 1,266 tagged birds of 35 different species. In 2021, 40 birds have been tagged using funding from Fundación Iberdrola España and other collaborators: 2 hen harriers, 5 hawks, 17 black kites and 16 red kites. In turn, 6 pale swifts and 1 common swift tagged with devices have been recovered in previous years. Of these tags, with funding from the Migra programme, 25 birds have been marked: 17 black kites, 5 hawks, 2 hen harriers and 1 red kite. In addition, 22 birds

were captured in collaboration with other teams: 15 Red Kites with the LIFE+ Eurokite project, 6 Pallid Swifts and a Common Swift.

MIGRACIÓN Y ECOLOGÍA ESPACIAL De las poblaciones españolas 06 **DE HALCÓN DE ELEONORA** 

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.

In December 2020, the sixth monograph of the Migra programme was published, dedicated to Eleonora's falcon (Falco elenoroae), entitled "Migration and spatial ecology of the Spanish populations of Eleonora's falcon". Eleonora's falcon is a very peculiar migratory raptor, which breeds on cliffs of islands and islets in the Mediterranean Sea and the Atlantic Ocean, feeding during this time on migratory birds, and winters mainly in Madagascar. Their spatial ecology is extensively discussed in the monograph, with a regular presence in the month of June in the eastsoutheast sector of the peninsula, where after flying more than 8,000 km they feed before their breeding season on the Mediterranean islands.



Migra Program 2020 publication "Migration and spatial ecology of Spanish populations of Eleonora's falcon'

#### Forest Defence-Iberdrola

In 2018, Iberdrola signed a collaboration agreement with the Ministry of Defence and the General Directorate of Infrastructure for the development of joint initiatives for the improvement, protection and conservation of the environment in different areas. One of the areas of action indicated was the conservation of the natural environment. To do this, these organisations agreed to implement a reforestation programme for the army's military training areas, owned by the ministry. Iberdrola, through its Foundation, is in charge of undertaking these works in the areas selected by the administration, and has committed to carry out one per year.

The Fundación Iberdrola España implements this initiative with several reforestation projects in army manoeuvre and firing ranges. Since the signing of the agreement with the Ministry of Defence, the Renedo-Cabezón (Valladolid) and Sierra del Retín (Cádiz) fields have been inaugurated and, currently, the Chinchilla field (Albacete). In addition, it has led the reforestation of the Abies Pinsapo species in the Grazalema Biosphere Reserve and Natural Park.

Thanks to this initiative, not only is the conservation of the natural environment improved and encouraged, but it also contributes to the reduction of CO<sub>2</sub> emissions.



The reforestation of Renedo Cabezón from the Iberdrola Forest Defence plan

#### Collaboration with the Wild Fauna Centre in Albacete

Fundación Iberdrola España collaborated with the Albacete Wild Fauna Recovery Centre by donating digital radiography equipment to enhance the work of the professionals caring for this resource.



Radiograph donation

#### Agreement with the Renewable Energy Research Institute

Iberdrola has signed an agreement with the Renewable Energy Research Institute of the University of Castilla-La Mancha to jointly investigate the positive environmental impacts on fauna and flora associated with the construction of photovoltaic plants in the region.

The objective of the study is to bring attention to two of these main impacts. On the one hand, the increase in biodiversity as a consequence of the abandonment of crops and the use of fertilisers and biocides. On the other, the change in land use: from agricultural to a naturalised one, of higher quality. A greater capacity to accommodate colonialist species is thus achieved, which over time will be replaced by other more specialised ones, thus generating an increase in biodiversity in the area. https://www.uclm.es/es/global/promotores/otros/ instituto-energias-renovables/novedades\_medioamb/-/media/12922AAEE352475698AA601ED8FE03CA ashx

The Deputy Minister for the Environment of Castilla-La Mancha. Fernando



Radiograph.

Marchán extended his thanks to the Fundación Iberdrola España. The director of the Foundations Committee of the Iberdrola group, Ramón Castresana, attended on behalf of this entity. The radiography equipment represents an advance in the incorporation of new technologies in the Recovery Centre.





Renewable Energy Research Institute publication.

Sheep around a photovoltaic plant

**66** After carrying out the analyses of soil quality and biodiversity for five years, a report has been published concluding that photovoltaic plants imply improvements in these factors and includes a manual of good practices for improving biodiversity.

#### Collaboration agreement with SEO/BirdLife

The objective of this collaboration agreement is the development of a campaign to rescue agro-steppe birds in Extremadura. The project will analyse and assess actions to prevent excessive agricultural pressure from reducing the habitat available for species such as the great bustard, the little bustard and the Montagu's harrier.

This agro-steppe bird rescue campaign aims to monitor the breeding areas of these species to identify nests that could be affected by possible agricultural uses. Agricultural producers will thus be assisted in adapting their activities to avoid possible impacts.

The campaign includes actions throughout the year in nine main areas, covering a total of 450,000 hectares, including the identification of nesting areas for these species, markings with satellite transmitters for long-term monitoring, identification of nests, coordination of partial and final reports, and communication of the results obtained.

#### Collaboration agreement with ASAJA

Iberdrola and the Agrarian Association of Young Farmers (ASAJA), the largest professional agricultural organisation in Spain, have signed a strategic alliance to promote sustainable and emission-free agriculture and livestock. To do this, they have designed a work plan with two basic vectors: to promote actions aimed at improving energy efficiency and launch initiatives to continue preserving biodiversity, and caring for the rural environment.



**SEO** Birdl ife



#### Conference on Offshore Ornithology

In 2021 ScottishPower Renewables hosted their sixth Offshore wind and Ornithology Conference. The conference brings together key industry players to review current activity, challenges and future opportunities in harmonizing offshore wind and ornithology in the broader context of meeting the UN Sustainable Development Goals and meet the Paris Climate Agreement targets of limiting global temperature rise to well below 2°C.

The conference was held virtually and was attended by more than 170 people, representing 63 organizations, who were able to contribute with knowledge and experiences from various sectors of the industry.

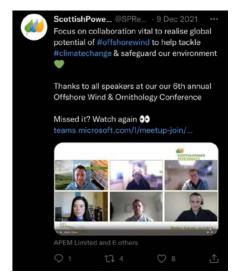
#### Offshore Wind and Biodiversity Event with UN Global Compact and IUCN



COP26 Offshore Wind and Biodiversity Event

Collaboration to benchmark underwater noise

**Since the beginning of 2021, Scottish Power Renewables** Offshore have led cross-industry collaboration to share schedules of noise-producing activities and discuss the challenges of underwater noise.



Sixth Annual Offshore Wind & Ornithology Conference

The UN Global Compact and the International Union for Conservation of Nature (IUCN) with the support of ScottishPower Renewables held a special event during COP26 at ScottishPower headquarters in Glasgow to discuss the current scenario of increasing demand for offshore wind energy for mitigating climate change and the importance of protecting biodiversity.

The successful event hosted a large presence of stakeholders such as NGOs and regulators, who they were able to share current experiences, best practices and knowledge of the needs for biodiversity protection in offshore wind development.

Sharing this highly confidential information along with experiences and ideas on how to reduce underwater noise impacts is particularly useful for managing the cumulative impacts of various offshore wind projects for marine mammals and fish species.

#### Hagshaw Hill Cluster collaboration



SP Renewables Onshore has been an active participant in the Hagshaw Hill Development Framework, which, led by NatureScot, brings together developers, councils, Scottish Government, Historic Environment Scotland, SEPA, Scottish Forestry and other key stakeholders to create a place-based framework for enhancement and investment in the local environment and communities around a cluster of wind farms in the south of Scotland.

As a member of the bird working group for the framework, SP Renewables Onshore has assisted in reviewing all ornithological work carried out to date in the projects of the cluster. This review supports work to create a strategic plan for the area by pinpointing common species of concern and identifying shared opportunities for habitat mitigation and enhancement.

Wind farm in the south of Scotlan

The cluster held an online consultation during 2021 and will launch its draft development framework for consultation during 2022

#### Biannual meeting on policy strategies related to onshore wind farms

In 2021 ScottishPower Renewables Onshore attended biannual meetings with NatureScot, the RSPB and Forest and Land Scotland to discuss strategies and policies relating to ecological issues concerning onshore energy developments, covering the development, operational and decommissioning phases.

#### Defining future biodiversity plans for distribution networks

During 2021, SP Energy Networks developed its RIIO-ED2 Business Plan, laying out its investment plan for 2023-2028. Two stakeholder workshops were held on the topics of Biodiversity, Climate Adaptation and Pollution Prevention, enabling stakeholders to consider proposals for biodiversity enhancement and natural capital management strategies, methodologies and investments.

The workshops covered SP Energy Networks':

High-level vision for biodiversity enhancement and natural capital management.	Strategy to for biodiversity enhancement and the use of incentives to accelerate delivery.
Methodologies to assess natural capital	Strategies to mitigate oil pollution and respond to noise pollution complaints

The first workshop involved Scottish stakeholders, providing the opportunity to discuss features specific to Scottish biodiversity protection and natural capital management. The event discussed the potential for the Defra Biodiversity Metric to be used as a basis for SP Energy Networks to develop a methodology for natural capital assessment, and the applicability of the metric to some regional Scottish ecosystems. The second workshop focused on Welsh stakeholders, building a clearer picture of local priorities and relevant parties to engage and collaborate with.

Stakeholders highlighted the importance of SP Energy Networks developing an in-depth understanding of its natural assets to effectively protect and enhance the biodiversity of these sites. Gaining this understanding will not only enable SP Energy Networks to implement suitable measures to safeguard site biodiversity, but also seize opportunities which can help improve the biodiversity of its sites.

Noting the fact that networks assets are often sited on land owned by others, stakeholders recommended that SPEN connect with a range of influential stakeholders including landowner associations and local wildlife trusts in order to engage with landowners and other interested parties in a targeted and effective manner.

Stakeholders also highlighted the importance of carefully planning access to project sites and of protecting naturally regenerating habitats during projects and underlined the key role played by brownfield sites in maintaining the biodiversity of their wider habitats.

This feedback shaped the biodiversity strategy and investments within the final business plan submitted.

### **66** If approved by Ofgem, the energy regulator, the plan will be carried out from 2023.

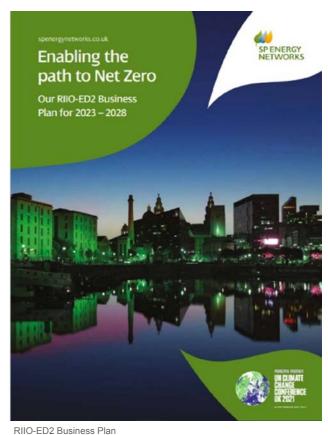
For the full RIIO-ED2 Business Plan, including the detailed Environmental Action Plan, please see https:// www.spenergynetworks.co.uk/pages/our\_riio\_ed2\_business\_plan.aspx

#### Bumblebee Conservation Trust

Saving the Great Yellow Bumblebee is working in Scotland to safeguard threatened populations of one of the UK's rarest bumblebees. The project has four main objectives:

To establish the current distribution and abundance of the yellow bumblebee in Scotland.

To increase knowledge of the needs of the vellow bumblebee and its use of the habitats where it is found.



To develop key relationships, contacts and networks with stakeholders in the Great Yellow bumblebee areas.

To develop key relationships, contacts and networks with stakeholders in the Great Yellow bumblebee areas.

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#### Wildfowl & Wetlands Trust

The 'Generation Wild' project aims to provide children across the UK, especially those from economically disadvantaged communities, with opportunities to experience and interact with wetlands and their wildlife.

In addition to offering family vouchers for visits, the Generation Wild awards program encourages the local community to take part in any nature-based activity.



#### Dynamic Earth Charitable Trust

Wildlife day

It has been funded the creation of a new state-of-the-art planetarium at Dynamic Earth, a science and educational charity center. In addition, the mobile planetarium outreach program will transform the way we inspire diverse audiences about our planet and the environmental challenges we face.

A planetarium can do much more than show the stars, it can take us on a tour of the Universe, exploring the planets and all known objects in the solar system along the way. Vitally, it can allow us to look back at our Earth from space, accessing satellite imagery to present in 360° the rich and varied natural world and human impacts on our planet. This will be the only planetarium in Edinburgh and one of only two in Scotland. The shows will be adapted to the audience, according to their interest, age or level of scientific knowledge.

All shows will be given with a live presenter, making them truly customisable and fully interactive. The Mobile Planetarium will offer a tailored outreach programme across Scotland, addressing the urgent need for more inclusive scientific engagement across society.



#### **Finger Lakes Land Trust**

In New York State, AVANGRID has signed an agreement with the Finger Lakes Land Trust, a nonprofit organisation whose goal is to help preserve the landscape and waters of the Finger Lakes region, characterised by lakes, waterfalls, gorges, and hills. The agreement covers the company's undeveloped property along Cayuga Lake. Although many parties have expressed commercial interest in the area, AVANGRID has committed to helping preserve this property by reaching a purchase agreement with the Finger Lakes Land Trust.



Cayuga.Lake

Wildlife Foundation (NFWF)



Through a four-year partnership with NFWF, the Avangrid Foundation will protect vulnerable habitats and fauna. such as hibernating Chiroptera throughout North America, fish and migratory forest birds in

the Northeast, and grassland- tributor to science-based, engaged fisheries managedependent birds and mammals ment. 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. objectives across ocean science, fishery management, and business and community resiliency, focusing 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.

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 The partnership will include interdisciplinary research 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 stop the spread of white nose syndrome in Chiroptera.



#### Darwin200 Project

Between 2020 and 2021, the Avangrid Foundation presented the Darwin200 project, a modern voyage that will retrace Darwin's footsteps to highlight environmental and ocean issues and will set sail in 2023. Darwin 200 aims to be the "Science and Conservation Olympiad" over the next few years, to select the 200 young scientists who will participate in the expedition, driving passion, enthusiasm and hope to inspire greater care of our natural world, while training tomorrow's leading conservationists from around the world and inspiring generations to come.

#### Protection of vulnerable habitats and Ocean climate research and community biodiversity with the National Fish and capacity for science-based decisionmaking 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 con-



#### Trust for Public Land - Connecticut

The project's goal is to make the Bridgeport docks in Connecticut accessible to the population, improving health and well-being by increasing access to open land and recreational areas (Bridgeparks and People Programmes - Bridgeport Waterfront Pathway). This is a long-term initiative to organise the community, raise awareness, create and implement a master plan for redevelopment and dock access.



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 services.

The group also participates in the ABEEólica (Brazilian Wind Energy Association) working groups, discussing issues related to the environmental effects of wind farms and mitigation strategies. Likewise, the Neoenergia group also participates in the Working Groups of ABSolar (Brazilian Association of Photovoltaic Solar Energy),



debating environmental issues related to photovoltaic plants and the best procedures to mitigate impacts.

In addition, the Group is part of the Working Group on offshore wind energy, whose meetings are scheduled to start in May 2022. This is a technical discussion group on the structuring of technical subsidies directed for the environmental agency of Rio Grande do Sul (FEPAM) to support the preparation of a Reference Policy (RP) for deep lake ecosystems.

#### Caatinga restoration project

As reinforcement of its commitment to the restoration of the Caatinga, Neoenergia voluntarily carried out the Caatinga Restoration Project in 2021, in collaboration with the Caatinga Association and professors and researchers from the Federal University of Rio Grande do Norte (UFRN), proposing to implement innovative techniques and train public managers and decision makers involved with the issue.



Professor of the Department of Ecology at UFRN working on the Caatinga restoration project

The project included:

- Holding of an Advanced Online Course on Ecological Restoration of the Caatinga to train current or future public managers as well as federal, state and municipal officials in the most modern and advanced techniques for the effective restoration of degraded areas of the Caatinga;
- Update of the Restoration Interactive Platform in collaboration with the WRI (World Resources Institute) with unique information on the lists of species that

should be planted and suggestions on how to perform the planting to improve the restoration of the Caatinga with respect to the Northeast States of Brazil;

models, with the planting of 2000 seedlings in an experiment in the Acu/RN National Forest.

On National Caatinga Day, a digital platform called "Educaatinga" was also launched in collaboration with CIEDS (Integrated Centre for Sustainable Development Studies and Programmes) and Embrapa (Brazilian Agricultural Research Corporation), with educational tools that include a digital game and a learning guide. Using a fun and visual concept inspired by cordel literature (Brazilian Intangible Cultural Heritage), and also culturally linked to the Northeast region, the objective of Educaatinga is to raise awareness and educate children and adolescents about the importance of preserving the biome, which is the only one that is exclusively Brazilian.

The development of these tools and the intention of promoting commitment for future generations to value and preserve the Caatinga directs the Educaatinga tools towards children and adolescents. The game is based on a legend created for the project about the girl who became Sabiá, a characteristic bird of the caatinga. Through a about the White Forest, as the biome is also called.

The project creates a sense of belonging and leaves a legacy. And, despite having included students and teachers from schools in our areas of operation in its preparation, the platform can be used in any school to study the importance of the caatinga. In the process to catch up due to the pandemic, the use of fun and innovative activities like this one can help motivate students.

#### Flyways Brazil project

Created in 2015, the Brazil Project Flyways is an initiative of SAVE Brasil (Brazilian Bird Conservation Society) in collaboration with the Neoenergia Institute, which aims to guarantee the local conservation of birds and their habitats, contributing to the conservation of species at the hemispheric level.



The actions of *Flyways*Brazil focus on four areas: monitoring the wader population in the Potiguar basin; commitment of social agents and the local community in the conservation of waders; promotion of educational actions for the conservation of important wader habitats; and knowledge of the distribution of the Red Knot (Calidris canutus).

In 2021, despite the challenges posed by the pandemic and the fact that 2020 was marked by a long period of confinement that made it impossible to carry out the censuses during the first semester, in addition to continuing the monthly monitoring

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bot chat, students can interact with the platform and follow a clue, which mixes the girl's story with information

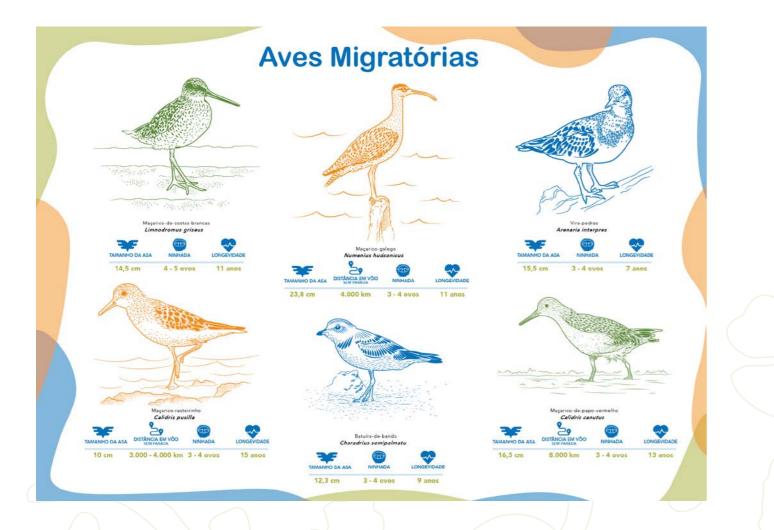
survey of wading birds (from the Latin limus, which means they live in silt or mud), we developed and began to implement the project's Strategic Communication Plan, and expanded our outreach to the local community.

Based on the communication strategies developed, communication with local agents was prioritised, associated with an education process about the presence of migratory wading birds in the Potiguar basin, particularly in the coastal area of the Costa Blanca Pole, in Rio Grande do Norte. The educational aspect is the result of the link between communication and the environment and runs through all activities of the project.

We believe that a greater commitment from residents and the various sectors present in the region is necessary to protect natural habitats. However, for there to be a greater commitment, it is necessary to disseminate knowledge of local wading birds in the region and the importance of conserving wetlands, known as breeding areas and wintering or resting and feeding places for the different populations of these birds.

The Potiguar basin region is an important breeding area for eight (8) bird species, five (5) of which are resident wader species: Collared Plover (*Charadrius collaris*), Wilson's Plover (*Charadrius wilsonia*) Black-necked Stilt (*Himantopus mexicanus*), American Oystercatcher (*Haematopus palliatus*) and the Southern Lapwing (*Vanellus chilensis*). This information points to the region as an important breeding site, reinforcing their environments in the maintenance of local populations and the need to protect their habitats.

Therefore, driving the commitment of the local population to the conservation of waders and the ecosystem of the region was one of the main objectives of the project in this period.



The censuses carried out during 2020 and 2021, in the Potiguar basin, reveal that around 20 species of waders are registered in the region, 15 of which have are migrational. Four species of waders observed in the region are considered threatened according to the Official National List of Threatened Fauna Species (MMA 2014, 2018):

Correlimos semipalmeado (Calidris pusilla)

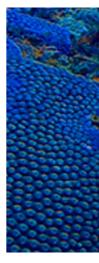
Becasina piquicorta (*Limnodromus griseus*)

The count data carried out between September 2019 and August 2021 indicate peak abundance of specimens in October and December (period of movement of the species towards more southern areas) and between February and April (period of movement of the species towards northern regions).

Even in this period of uncertainty, in the face of the challenges imposed by the COVID-19 pandemic, the actions of the Flyways Brazil project continued to contribute to SDGs 4, 12, 14 and 15, with specific goals and impact indicators defined for each one of them. In addition to carrying out the monthly censuses and getting closer to the community, we have organised several local partners with the intention of developing, starting in 2022, different educational and socio-environmental activities. Some of the project's activities were adapted for the virtual environment and investment was made to strengthen the project's brand in the Potiguar basin.

#### Coralizar project

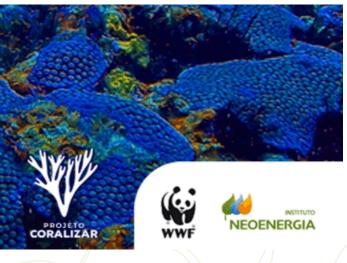
The Neoenergia Institute and WWF-Brazil (World Wide Fund for Nature) implement the Coralizar Project in search of solutions to the impact of climate change. The Coralizar Project is an initiative that aims to restore corals in the northeast region, through research and environmental education actions in the APA areas of the Coral Coast and Las Rocas Atoll. Coralizar seeks to make the restoration, maintenance and adaptation of coral reefs a priority on the Brazilian agenda, in addition to committing various social agents to promote the preservation of the oceans.



The project develops a methodology for the restoration of coral, focusing on two native builder species, *Mussismilia harttii* and *Millepora alcicornis*, essential for the quality of the marine ecosystem. In addition, it promotes research in mesophotic reefs (deep waters, over 150 m deep), disseminates knowledge to the scientific and civil community and promotes new business models based on ocean sustainability.

In the coral restoration actions of the Coralizar Project, in 2021, the best possible result was achieved: to maintain a low mortality rate and the growth of the two coral species threatened by climate change. The potential of the experiments in terms of changes in the local reef, especially in the ecology of natural pools, was also evaluated, with no significant changes recorded in the analyses. Taking into account the low relative losses, the results show the viability for growth possibility with the methods used, even in the face of minor

Títere playero	
(Charadrius wilsonia)	



heat waves with bleaching in the local reef. It is always important to emphasise that coral restoration actions are a scientific frontier in Brazil, so successfully managing corals is the best result this project could have.

In addition, we have promoted direct and indirect impacts for an area of 0.44 km<sup>2</sup> of reef zone that in-situ coral nurser is important for tourism and local fishing, belonging to the Porto de Galinhas district. In this region we have a project structure of: (i) 12 nurseries installed in situ, with 720 coral seedlings being monitored; (ii) 1 nursery ex situ with 120 seedlings at UFRPE; and (iii) ongoing planning actions for the development of blue tourism related to coral restoration, with direct impact for the association of 15 gancheros (Pontal de Maracaípe) and indirect impact for residents (8,000) and tourists (60,000) from Porto de Galinhas (8000), Porto de Galinhas gancheros (84) and fishermen (45).

> In addition, 34 km of seabed were mapped, with new mesophotic reefs not yet described by science.

Regarding innovation, through the Summer Work Programme of the Cesar School, a multi-pronged plan was developed for the financial sustainability of coral restoration projects.

After the long delay of many previous work plans due to the combination of critical environmental factors, such as the impact of the oil spill or the effect of climate change and the COVID-19 pandemic, 2021 was a very special period.

The outlook for 2022 includes the launch of a 6-episode podcast series, a documentary on the restoration, and a web miniseries on the expedition on the coral reefs of the Rocas Atoll.

The Coralizar Project officially enters its second phase in June 2022, with a work plan until June 2023 focused on consolidating the restoration methodology, replicating the projects in 3 locations on the Coral Coast. At the same time, the network of local partners is expected to expand.

The Coralizar project considers that conserving, restoring and even discovering new coral reefs is one of the great gaps of this decade that contributes to the SDGs. These will be decisive years to evaluate the responses of coastal and marine ecosystems to global actions to mitigate the effects of climate change.

#### Pantanal

The Neoenergia Foundation deployed an emergency donation to combat the consequences of the burning of the Pantanal, a Brazilian biome that, from January to October 2020, contained than 27% of the degraded area. The donations were destined to the non-governmental organisations Instituto Arara Azul and SOS Pantanal, which are already active in the region, promoting the conservation of biodiversity and natural resources and developing actions in this alluvial plain, declared a Biosphere Reserve by Unesco.

Among the actions to mitigate the impacts of the fires in the region is a project for the protection of the blue macaw, an endangered species, which considers the installation of artificial nests in the trees to replace the cavities of their natural habitat, which were destroyed by flames.



supplies to fight fires in surrounding areas.

Installation of a nest box in the Pantanal biome

The actions of the Instituto Socioambiental da Bacia do Alto Paraguay SOS Pantanal are also taken into account, rescuing wildlife and supporting affected communities through basic food baskets and essential

In addition to contributions to the environment, the support of the Neoenergia Institute will also help the displacement of teams from organisations working in the region and the development of a study of the area affected by the fires.

**4.3.6.** Mexico

#### Conservation project in support of 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.

Between 2020 and 2021, recognition was given to owners of the land where the camera traps are located for their commitment to the project, and the Snapshots of various species of fauna obtained thanks to the photo-trapping amplification of areas in new ranches. In addition, cameras. there was a meeting with the new API director and the management of new forms of collaboration.

#### Fernández Canyon Conservation Project

The Iberdrola Mexico Foundation, in alliance with Pronatura, the Durango Government<sup>12</sup> 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

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

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Assistance to affected native fauna



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-yearold Montezuma cypress forests and riverside vegetation, controlling exotic invasive species and enabling the communities to regulate the park's tourist activity.

2020 and 2021 saw the execution of the pre-diagnosis work of the Park and socialisation of the project with the owner communities, field work in the areas, reinforcement with the



Thousand-year-old Montezuma cypresses in the Fernández Canyon

communities for the participation and approval of the project and meetings with the advisory body of the Cañón de Fernández to monitor the project.

#### 4.3.7. 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.

The Corporate Volunteer Programme registered more than 10,400 volunteers in 2020 and 12,200 in 2021. One of the most noteworthy global environmental care projects undertaken is:

- The International Volunteer Day has been celebrated, as every year, in the main countries where it carries out its activity with the motto Together we build the world we want! This day has the objective of raising awareness in the fight against climate change and care for the environment, as well as in the inclusion of vulnerable groups and awareness 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 18,200 girls and boys in more than 593 workshops conducted by Iberdrola Volunteers. Due to the pandemic, they have adapted their content to be able to do this digitally.



Spain

More than 1,500 volunteers, of which 650 were Iberdrola Spain employees, participated in the 25 volunteer initiatives and nature care initiatives held in 2020 and 2021 all across Spain in collaboration with various conservation and vulnerable group organisations.

The social projects of Iberdrola Spain with significant repercussions within the Tree Programme - Branch 3 are listed below:

Volunteer work on Forest Day, Basque Country: In the Urdaibai Biosphere Reserve, together with volunteers, 332 trees were planted.



Environmental Volunteer Day – Navacerrada:

Environment Day and Volunteer Week: In these two years marked by the restrictions of the pandemic, employees and volunteers have continued to contribute to improving the environment by planting more than 6,880 seedlings and 7,690 tree seeds in different parts of Spain.

Garden of the senses: Project to raise awareness about diversity and the environment carried out in collaboration with the Amás Social Foundation where volunteers and people with intellectual disabilities together build something in natural areas divided into thematic areas, each dedicated to a particular meaning. Subsequently, activities will be carried out in the garden with a double focus: environmental awareness and awareness of inclusion, providing a sensory and inclusive experience to its visitors.



**Stay in the Nest:** Basic training in ornithology developed by SEO Birdlife with the E-bird app, so that everyone from our homes can do "citizen science" and thus provide information that can help us to take care of our birds and biodiversity and learn about the evolution of the most urban bird populations.

LIBERA - Deal with the rubbish: Corporate volunteering once again joined this initiative by SEOBirdlife and Ecoembes to put an end to waste in natural areas and deal with the stealthy enemy, "rubbish". The purpose is to raise awareness to change behaviour and habits, collaboratively collecting rubbish in different parts of Spain. In this project each person, each action and each square metre count.

In the Almorchones Woodland of Public Utility, 186 holm oaks were replanted with the collaboration of volunteers and users of the Murialdo Association.





Free the sea of plastics (Gravity Wave) and Bingo without plastics: volunteer initiatives to calculate the plastic footprint and reduce the consumption of single-use plastics. The purpose is to raise awareness for responsible consumption that reduces the amount of plastics that reach the sea. In addition, for each participation, Gravity Wave cleans one kg of plastic from the Mediterranean Sea.





In 2020 and 2021, ScottishPower professionals and volunteers were involved across a wide range of projects related to the protection and restoration of natural capital.

Lost Woods Project: This project brought more than 1100 primary school children together from 146 primary schools to create the Glasgow Children's Woodland. Over three days, the children planted more

than 17,000 trees on a vast 13-hectare site. ScottishPower provided funding to cover the cost of hybrid buses to transport the children to and from the site and 15 volunteers from the business also got involved across the three days, planting 120 saplings. This woodland, the first of its size to be planted in Glasgow, will capture almost 6,000 tonnes of CO2 over its lifetime, encourage the planting and protection of more trees in our towns and cities, and enable and unite a new generation of young people to value urban nature and green spaces both here in the UK and around the world.

Trees for Life Project: In this project, sponsored by ScottishPower and in which volunteers from the company also participate, 300 trees have been planted in the ScottishPower grove, making a total of 1,217 since the project was created. The trees in this grove are carefully planted in protected sites in the Scottish Highlands where they create homes for wildlife and forests for the future. This grove has been planted to celebrate ScottishPower volunteers and their commitment to championing biodiversity and challenging the status guo on the path to net zero.







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

Riverkeeper - New York: The great team of volunteers from NYSEG/AVANGRID participated in the initiative organised by Riverkeeper for the benefit of riverside communities along the Hudson River and its tributaries, as well as its estuary in which 10 New York counties meet. In addition to cleanup, the projects involve planting and maintaining trees, as well as removing invasive species from wetlands.



In Mexico, during World Environment Day 2021, volunteers and the local population carried out important environmental recovery activities in various zones:

In the municipality of **San Pedro** Almoloya in Guanajuato, 1,000 pine and white cedar trees were reforested in an area close to where 300 families live. Twentyfour people participated, including volunteers from Iberdrola Mexico

and people from the community.

In the municipality of Cuyoaco in the state of Puebla, 1,000 oak, strawberry tree and stone pine trees were reforested in an area close to where 200 families live Twenty-eight people participated, including volunteers from Iberdrola Mexico and people from the community.





In addition, in Mexico the Rally for the Environment has been advanced through training and the development of 5 environmental challenges based on the Educaclima tool in 15 primary schools close to Iberdrola México's work centres.



In the municipality of **EI Espinal** in Oaxaca, 1,000 jacaranda and mahogany trees were reforested in an area close to where 200 families live. 35 people participated, including volunteers from Iberdrola Mexico and people from the community.



### **4.4.** Awareness and communication

**G** Highlight and raise awareness of the relevance of the protection and conservation of biodiversity with training activities, internal and external education, awards, publications, as well as sponsorship actions, and to communicate the impact of the Group's activities in this area internally and externally.

#### 4.4.1. Training and awareness-raising

More than 70,000 hours of environmental training were given to employees, paying special attention to ensuring that employees are informed about aspects related to the protection and improvement of biodiversity. In addition, awareness was promoted externally with customers, suppliers and the community through Webinars, Talks and intensive Biodiversity awareness and knowledge news.

In 2020, Iberdrola proposed Biodiversity as the theme of the year and during the year 5 communication actions were performed with digital content published in Iberdrola News on this topic to improve knowledge and raise awareness of the importance of conserving biodiversity. Biodiversity Day and World Environment Day, which was also dedicated to biodiversity, were central to this awareness campaign.

The theme for 2021 was: "Restoration of ecosystems" and Iberdrola carried out three communication actions on this topic during Forest Day, Biological Diversity Day and Environment Day. The communications were published in Iberdrola News with the aim of promoting environmental awareness and increasing the knowledge of all employees on the subject.

In addition, in 2021 Iberdrola carried out many external awareness and communication actions in social projects on Oceans Day with activities to combat microplastics on the beach and other actions to raise awareness and increase knowledge about waste and food waste, raising awareness of the reduction of environmental impacts, both from the point of view of the company and individuals.





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 2021, the Online Course on Biodiversity and Natural Capital was launched for all Iberdrola employees in Spain with the aim of increasing knowledge about the importance of Biodiversity.

In addition, training talks have been given and various environmental training sessions have been carried out for staff. Also, theoretical and practical simulations on environmental emergencies have been carried out in many of the plants, with the aim of improving the environmental management process and promoting its use and knowledge.



Enhorabuena



In 2021, ScottishPower Renewables Onshore's ecology team participated as a speaker at two green conferences: at the International Union for Conservation of Nature (IUCN) conference on peatlands it presented its general experience in peatland restoration, and at The Golden Eagle Festival (led by the South of Scotland Golden Eagle Project, sponsored by SP Renewables Onshore), gave one on wind farms and birds, with a special focus on the golden eagle.



#### Awareness and knowledge sharing at COP26

At the ScottishPower headquarters and coinciding with the COP 26 on Climate Change, a full programme of events and conferences was organised and which received thousands of visitors. Offices and meeting spaces were provided at the Climate Vulnerability Forum and a visit to the Whitelee Wind Farm was arranged, where several world COP delegations and other important political figures were welcomed. This provided the opportunity to show the role of renewable energy in a cleaner and greener future.

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The newsletter aims to increase awareness and knowledge sharing through communication between environmental teams and the wider business. The East Angle newsletter also provided updates on the East Anglia offshore projects to both internal and external audiences, including environmental surveys and community initiatives.

We also continued our support of the RSPB Climate Change Youth Project, enabling the participation of thirteen young people from the RSPB youth steering group to participate in the COP26 Climate Change Youth Gathering.

In line with COP26, the incorporation of a mural was inaugurated on Glasgow's iconic art trail on the facade of one of SP Energy Networks' urban substations. The mural was produced by world-famous street artist Smug and is titled "Generation Green." The work of art, a permanent legacy of COP26 to this city, calls for a greener energy future for the next generation.



Artist 'Smug' in front of the mural at Glasgow's Newton Street Substation



Avangrid Renewables operations staff have received the environmental training course with curriculum for operations and wildlife coordinators delivered through webinars, online learning and site visits.

The environmental awareness training project was carried out at the Kitty Hawk offshore wind farm for all external vessels that operate in projects in the United States. The training project covers some specific activities and prevention actions against discharges and spills in the marine environment. Training was carried out in 2021 for all external vessels in the project.



The guiding principles of the Environmental Education and Social Communication Programme aim to promote the inclusion and participation of the community in the process of implementation and operation of the projects planned for installation, in addition to raising awareness about the preservation of natural resources.

The Environmental Education Programmes are based on three complementary approaches:



During 20-21, numerous actions were carried out, developing non-formal teaching processes that disseminate knowledge that promote the development of shared management and the overcoming of social and environmental conflicts. The educational and informative actions carried out with the communities aim to stimulate community leadership to improve the quality of the environment and quality of life. Likewise, these programmes provide information on environmental protection measures, the prevention and minimisation of social and environmental impacts, the practices necessary to preserve the environmental balance in compliance with the legislation, and other issues related to the implementation of a



project.

In addition, during the operational phase, awareness-raising actions were carried out on topics such as climate change, the effects of hunting on biodiversity and the

dissemination of the results of the monitoring of fauna carried out during the operational phase in several renewable generation plants. In this context, we can highlight the teacher training course given in collaboration with the Municipal Secretary of Education of Caetité, whose topics were selected by the public to be of interest and which has resulted in an electronic book containing 14 environmental education practices carried out by the teachers during the courses taught in 2021.



The main objective of the Social Communication Programmes is also to establish a permanent dialogue between the employer and the social agents involved, providing the local population with access to qualified information about the project and the activities related to its implementation, ensuring a transparent communication process.

### for the external public

#### **Environmental education** aimed at workers and service providers







Closing of the Science Project at School. Registration: Draxos

Information meeting, institutional meeting; Science Project at School. Registration: Draxos

Educational material plus environmental and social communication. Registration: Draxos

During 20-21, several internal awareness and communication actions were carried out for employees, through digital content and with the organisation of face-to-face conferences that address environmental and biodiversity issues. The main objective is to train employees in measures to prevent environmental and social impacts, accident prevention measures and information on local communities in order to foster good relations and coexistence with the population. Environment week was organised, with awareness conferences and the donation of seedlings of native species to employees.



Presentation of the PEAT to the workers by the Dossel team. Registration: Dossel

A training module for employees in Environment and Energy Distribution was created that addresses general environmental concepts and reinforces Neoenergia's culture of sustainability. This learning path module was completed by 96% of distribution employees, across all levels of staff. The training itinerary includes two other courses, which address topics such as Environmental Legislation applied to distribution projects and Vegetation Management, focused on operational teams, bringing knowledge of environmental issues into the day-to-day thinking of our employees.

#### Caatinga restoration project

As reinforcement of its commitment to the restoration of the Caatinga, Neoenergia voluntarily carried out the Caatinga Restoration Project in 2021, in collaboration with the Caatinga Association and professors and researchers from the Federal University of Rio Grande do Norte (UFRN), proposing to implement innovative techniques and train public managers and decision makers involved with the issue. The project included:

**Online Course on Ecological Restoration of the Caatinga** to train current or future public managers as well as federal, state and municipal officials in the most modern and advanced techniques for the effective restoration of degraded areas of the Caatinga

Update of the Restoration Interactive Platform in collaboration with the WRI (World Resources Institute) with unique information on the lists of species that should be planted and suggestions on how to perform the planting to improve the restoration of the Caatinga with respect to the Northeast States of Brazil

On National Caatinga Day, a digital platform called "Educaatinga" was also launched in collaboration with CIEDS (Integrated Centre for Sustainable Development Studies and Programmes) and Embrapa (Brazilian Agricultural Research Corporation), with educational tools that include a digital game and a learning guide. Using a fun and visual concept inspired by cordel literature (Brazilian Intangible Cultural Heritage), the objective of Educaatinga is to raise awareness and educate children and adolescents about the importance of preserving the biome, which is the only one that is exclusively Brazilian.

## Mexico 🔨 🕅

Environmental awareness days have been held at the La Venta III wind farm and at the Santiago photovoltaic plant, with the aim of training and raising awareness among operational personnel about the legal, environmental and biodiversity requirements of these facilities.

Portugal

In June 2021, the Interpretation and Environmental Awareness Centre (CISA) was inaugurated in Boticas Parque da Natureza, a fun and educational space aimed mainly at the youngest and whose main objective is to educate on the river mussel (Margaritifera margaritifera), a species of bivalve protected by the Convention on the Conservation of wildlife and natural habitats. In addition to river mussels, this space also offers information on two other species that inhabit this area, such as the water mole and the blue butterfly.

# France

During the construction phase of the wind farm off the coast of the Bay of Saint-Brieuc, awareness actions were performed about the marine mammals in the Breton Gulf of Normandy. The target species of this programme are the main species of cetaceans and pinnipeds found in the Gulf of Breton Normandy: bottlenose dolphin, common dolphin, grey dolphin, porpoise, seal pup and grey seal

The actions aim to improve the image and knowledge of the behaviour and lifestyle of marine mammals in order to better protect them. The information disseminated also aims to encourage respectful treatment of these species in case of accidental encounters, in relation to regular users of the sea. The actions undertaken include the elaboration of an awareness booklet on marine mammals and the participation in two annual awareness campaigns (two conferences). Implementation of an **Ecological Trail** for

environmental education and awareness of the importance of the Caatinga Biome. The trail will be used by the entire community, including schools and the general public





The river mussel (Margaritifera margaritifera)



Grey seal (Halichoerus grypus).

#### **4.4.2.** Awards

# Spain

Iberdrola has been awarded the Andalusian Environment Award (PAMA) in the Climate Change category, in recognition of its firm commitment to renewable energy and sustainable development in the Autonomous Community of Andalusia (southern Spain).

These awards, organised by the regional government's Ministry of Agriculture, Livestock, Fisheries and Sustainable Development, aim to publicly recognise the environmental work of individuals or companies who have contributed notably to the conservation, protection and dissemination of environmental values in the Andalusian autonomous community.

Iberdrola's objective is to generate clean energy, with a direct impact on the reduction of CO<sub>2</sub> emissions, highlighting its environmental performance and fight against climate change.

These awards are also part of the Green Revolution promoted by the Junta de Andalucía in which the preservation of natural areas is valued, promoting the human development of its inhabitants, the promotion of clean energy, support for the circular economy, the purification of residual waters or the improvement of air quality.

PREMIOS ANDALUCÍA DE MEDIO AMBIENTE 2021



# المعلم المعلم

ScottishPower Renewables (SPR) received a prestigious global award for its efforts to protect the environment and give back to the planet while constructing its flagship East Anglia ONE offshore windfarm. The East Anglia ONE SPR Environment Team was named winner of the Energy Institute Awards' Environment category for its considered and sensitive work during the development and installation of the windfarm.

The Energy Institute Awards celebrate the biggest accomplishments in the energy sector, with the Environment Award recognising schemes and projects that enhance and protect the environment, demonstrating a responsible and ethical commitment to managing the risks of energy to the environment.

Judges heard how the project's Environment Team went far beyond its statutory responsibility to minimise and mitigate the impact of the project on the onshore environment, putting extensive plans in place to protect the area and help native species thrive. From the earliest stages



ScottishPower Renewables (SPR) received a prestigious global award for its efforts to protect the environment and give back to the planet while constructing its flagship East Anglia ONE offshore windfarm

of planning and research, the team carried out painstaking work to fully understand the local area, creating protection plans for local wildlife.

Meticulous assessments were carried out daily, with teams searching locations on hands and knees to check the wellbeing of species and their habitats. Major work was paused to protect nesting Marsh Harriers which were then monitored daily for hours, and innovative methods of rejuvenating areas were used to allow natural land to regenerate.

These efforts are supported by a five-year commitment to monitoring and protecting the area – ensuring it flourishes for years to come.

### **United States**

The annual award is given to Wildlife Coordinators who strive and embody the spirit of the Wildlife Protection Programme. A notable achievement is recognised annually for a field technician and operating plant that has demonstrated outstanding performance in WMRS implementation and exemplified the spirit and intent of the Wildlife Protection Programme.

# Brazil

The Teles Pires Hydroelectric Power Plant received the Green Seal from the Chico Mendes Socio-environmental Institute, an organisation that works for sustainability and is a pioneer in the field of Socio-environmental Certification in Brazil. The hydroelectric plant was approved in the certification process in the Responsible Socio-environmental Management category, achieving 100% in all the evaluated issues. To issue the seal, analyses are carried out on the current sustainability in the economic, social and environmental fields of companies. The use of the Green Seal indicates that the institution is environmentally correct, economically viable and socially just.

## K 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.

### Australia

The Department of Energy and Mining of the state of South Australia has awarded the company the Premier's Award in the Environment category due to the innovative vegetation management system implemented by Iberdrola in the construction of its first wind-solar hybrid plant in the world, the Port Augusta project, in Australia. This system, called vegetation rolling, consists of compacting the vegetation as a method of preparing the land before installing the photovoltaic structures, keeping the surface soil layer intact, as well as the roots of the plants.



# on actions

Flora and fauna monitoring and research programmes

Limnological and Water Quality Monitoring Programmes

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### S Brazil

### Flora and fauna monitoring and research programmes

#### Teles Pires Hydroelectric Power Plant

In 2021, a new analysis of the results of the Fauna Monitoring programmes was presented to IBAMA (Brazilian Institute of the Environment and Renewable Natural Resources), with the aim of defining the continuity of the programmes or the implementation of terrestrial fauna conservation programmes in the region of the plant. These programmes developed during the installation and exploitation phases have made an important contribution to science and have recorded the presence of two new species of primates, specifically: Alta Floresta titi monkey (*Plecturocebus grovesi*) and Schneider's marmoset (*Mico schneideri*).

Monitoring of the non-dammed ichthyofauna of the Teles Pires Hydroelectric Power Plant and sections of the Paranaíta, Teles Pires, Santa Helena, Taxidermista and Cristalino rivers to assess changes in the structure, distribution, abundance, biology and ecology of the ichthyofauna, as well as of other changes associated with the implantation. Four quarterly campaigns to monitor the ichthyofauna are carried out annually and during the spawning season, from November to February, fish eggs and larvae are collected to assess the spawning grounds of migratory species in the region and the use of the tributaries located upstream of the plant for reproduction. Monitoring during the operational phase has so far recorded 229 species of fish.

The results from the Ichthyofauna Monitoring Programme were published in an article in a leading British scientific journal, Journal of Environmental Management. Journal of Environmental Management.

Theflora monitoring programme aims to verify the stabilisation of forest dynamics and possible alterations to the structure of natural plant communities existing in the areas adjacent to the reservoir of the power plant, in addition to subsidising the programme Implementation of the Permanent Preservation Area (PPA) of the Reservoir and the Forest Recovery programme. The programme was carried out by monitoring 62 sampling units in 20 modules, which made up a total of 12.4 ha of the sampled area. The supervision work is constant and important to guarantee the preservation of this rich forest area, where we have catalogued and studied more than 6,000 trees and almost 3,000 plants of 576 different species, in addition to the discovery of an orchid species, never before recorded.

#### Baguari Hydroelectric Power Plant

In 2020, the Fauna Monitoring Plan was submitted to the SUPRAM LM (Superintendence of the Environment of the Leste Minero region) and the agency's approval is awaited to start the programme for the supervision of mammals, avifauna and herpetofauna.

The Ichthyofauna Monitoring Programme studies the populations before the collection barrier, in the river and its tributaries, as well as in the Fish Transposition System (STP), which also makes it possible to evaluate the behaviour and reproductive patterns of the migratory species.

In the entire area of influence of the Baguari Hydroelectric Power Plant, 63,776 specimens were estimated, distributed in 52 species, divided into 21 families and 6 orders in total from the two ichthyofauna monitoring programmes (river, tributaries and STP). In relation to the different segments of the area of influence, the point that presented the greatest richness and diversity of fish was the tributary of the Corrente Grande River (BG - 06). Another important tributary is the Ribeirão do Bugre. Over the years of monitoring, both tributaries have supported native migratory species (for example, *Megaleporinus conirostris* [boga], *Hypomasticus copelandii* [boga roja], *Prochilodus vimboides* [tarpon] and *Brycon dulcis* [piabanha]), endemic (for example, *Delturus carinotus* [cascudo-laje] and *Brycon dulcis* [piabanha]) and that are on the threatened fish list (for example, *Prochilodus vimboides* [tarpon] and *Brycon dulcis* 

[piabanha]). Despite the scarcity of these species, it was possible to analyse the gonads of these species in advanced and late stages of maturation to determine reproductive activity. (Ryma, 2022))

The Reservoir Shore Reforestation Programme is in progress, through which the reservoir PPA surveillance and reforestation actions were resumed in 2018 with activities in 177 ha, currently supervised areas, in 2022 Reforestation activities began in another 19 ha of the PPA strip of the reservoir. The Compensation Reforestation Programme of PPA Intervention is also underway: in 2020 and 2021, 402 ha of Permanent Preservation Areas were identified in 22 rural properties of the municipality of Governador Valadares and other adjacent municipalities for reforestation by planting species of the Atlantic Forest with a planting forecast of more than 650,000 seedlings.

#### Dardanelos power plant

The monitoring of the ichthyofauna aims to characterise and identify the fish species, analyse their reproduction and feeding habits, as well as diagnose their conservation status, observe the local ecosystems and also analyse the possible impacts derived from the installation and operation of the project, with a view to developing conservation strategies.



Themonitoring of the mammals continues the study of the species and the state of conservation of the local ecosystems, as well as indicating the possible impacts of the implementation and operation of the plant, in order to develop conservation strategies.

The objective of the herpetofauna environmental monitoring programme is to continue with the prospecting, analysis and identification of species and monitoring of the state of conservation of local ecosystems, as well as indicating the possible impacts of the implementation and operation of the Dardanelos Hydroelectric Power Plant, in order to develop conservation strategies.

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#### Itapebí Hydroelectric Power Plant

The Aquatic Ecosystem Monitoring Programme, Ecological Monitoring Sub-programme, carries out guarterly quantitative and qualitative sampling to identify the main ecological aspects that regulate the general functioning of communities and understand the population dynamics of fish species in the region.



#### Corumbá III Hydroelectric Power Plant

The Monitoring of the Ichthyofauna and Ichthyoplankton in the reservoir of the Corumbá III Hydroelectric Power Plant seeks to understand the composition of these groups and to study the possible changes in the structure, distribution, abundance, biology and ecology, as well as to define the feeding patterns and reproduction of the fish community in order to obtain a scientific basis for decision-making that allows mitigation of the negative effects. Monitoring the ichthyofauna and ichthyoplankton therefore consists of collecting data from these groups at predefined points in the reservoir.

The specific objectives are the following:

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- Identify and record possible changes in the ichthyofauna during the operation of the Corumbá III Hydroelectric Power Plant
- Classify species as temporary, permanent or incidental
- Evaluate the structure of the population with respect to length, sex and its seasonal variation at the different sampling points
- · Establish the trophic relationships of the main fish species
- · Evaluate the reproductive aspects of the most frequent species
- · Estimate the production of fish eggs and larvae
- · Obtain information that allows decisions to be made to mitigate the negative effects
- Generate information of scientific value in order to contribute to the environmental evaluation of similar projects, especially those planned in the same river.

#### Baixo Iguaçú Hydroelectric Power Plant

The objective of the Ichthyofauna Monitoring Programme is to define consistent management and conservation plans for fish species, studying changes in populations in the area of influence of the project. In 2021, a total of 54 fish species were placed and recorded in the area of influence of the hydroelectric plant 22 are endemic to the Iguazú River; 19 are autochthonous; 8 are exotic in the basin; 5 species are of non-defined origin,

The monitoring sub-programme of the Iguazú surubí (Steindachneridion melanodermatum), an endemic and endangered South American catfish, includes studies on the characterisation of the habitat, migratory behaviour and evaluation of the behaviour of this species in the area of influence of the Baixo Iguacu Hydroelectric Power Plant, in order to support conservation strategies for the species.

The Surubim-do-Iguaçu is distributed from the Iguazú River to the upper Paraná basin, bordering the states of Paraná and Santa Catarina, Brazil (Garavello, 2005). This species has not been reviewed for a long time, mainly due to its low abundance and the difficulty of its capture (Garavello, 2005). For several years the Surubim-do-Iguaçu was considered extinct, but recently it has been recorded again in Brazilian waters (Copel, 2016). Being a fish of economic importance, studies focus on the nutritional aspect (Lewandowski et al., 2013) and on its

potential for cultivation in aquaculture (Feiden et al., 2013). The first individual information on the movements of Steindachneridion melanodermatum was obtained in the pre-filling phase of the reservoir of the Baixo Iguaçu Hydroelectric Power Plant and will be compared with the data obtained in the post-filling phase.



The tracking of mammals involves different techniques depending on the size of the mammals (active search, camera traps, capture, marking and recapture, and different types of live capture traps and drop traps) in order to record data. The captured animals were weighed and measured, their sex and age were verified, a metal tag was placed on them to mark them, and they were released in the same place where they were captured. The studies seek to compare the frequency and type of records throughout different campaigns, to verify the impact of the new environment formed by the power plant's reservoir and to be able to propose, where appropriate, measures that help the conservation of the species. Captured animals have been released in the same place where they were captured and non-invasive surveillance methods applied for periodic monitoring of the Neotropical otter.

The neotropical otter (Lontra longicaudis) monitoring programme is carried out periodically throughout the power plant's area of influence, using non-invasive surveillance methods, such as inspections on the banks of the Iquazú River in search of traces and camera traps for the visual and behavioural recording of the species/In the first campaign carried out after the plant's reservoir was filled, in a total of 342 km travelled, 31 records of the otter were obtained, 19 of them by tracks and sightings and 12 photographic records by means of six camera traps. The comparison of the results obtained will make it possible to verify, throughout the campaigns, whether the new environment formed by the reservoir of the power plant will maintain the frequency of occurrences of otters, so that, if necessary, actions can be proposed that help to conserve the species.

During the monitoring programme for the relocated flora, the team of biologists observed the following results:

- · Half of the relocated specimens adapted to their new environment.
- The surviving species are: Aechmea disticchantha (Bromeliaceae ), Miltonia flavescens (Orchidaceae ),

Billbergia nutans (Bromeliaceae), Dyckia microcalyx (Bromeliaceae) and Tillandsia stricta (Bromeliaceae).

- The amount of relocated specimens with the presence of insects increased throughout the monitoring, which indicates that the relocated specimens are contributing to the creation of new niches in the relocation points and the consequent colonisation of insects.
- The number of fertile specimens has been increasing over time, with a positive growth trend.
- During the surveillance process, some species stood out for their adaptation, fixation, phytosanitary status and emission of reproductive structures, thus being suitable for relocation processes. These species are: Aechmea distichantha, Billbergia nutans, Dyckia microcalyx var. ostenii, Tillandsia stricta and T. tenuifolia (Bromeliaceae); and Miltonia flavescens (Orchidaceae).

### Limnological and Water Quality Monitoring Programmes

#### Teles Pires Hydroelectric Power Plant

The objective of the Limnological and Water Quality Monitoring Programme is to identify the abiotic variables of water and sediment, microbiological and biotic (phytoplankton, zooplankton and benthic macroinvertebrates) in terms of abundance, richness, similarity, diversity and dominance of the taxa in the sampling points located in the main body and in the main branches of the Teles Pires Hydroelectric Power Plant reservoir, evaluating the possible alterations of the aquatic environment in the main body and in the main branches of the Teles Pires Hydroelectric Power Plant reservoir through physicochemical analyses of water and sediment, microbiological and aquatic biota throughout the supervised period. Every year, 4 field campaigns are carried out in which water and sediment samples are collected in 20 sampling sections. The results allow constant monitoring of the water quality in the stretch and allow the evaluation of possible changes in the water conditions of the Teles Pires and Paranaíta rivers. This programme also monitors aquatic macrophytes: aquatic plants of various species, which grow in some sections of the reservoir, which requires monitoring and possible removal actions.

#### Itapebí Hydroelectric Power Plant

Through the Aquatic Ecosystem Monitoring Programme, Water Quality Sub-programme, the limnological parameters that most influence the studied biological processes are verified and evaluated and the water quality verified in the catchment area for the supply of the city of Salto da Divisa (MG) and near the municipal landfill.

#### Corumbá III Hydroelectric Power Plant

The monitoring process of the water characteristics of the reservoir has been based on the recommendations of the Basic Environmental Programme and NBR 9897 (ABNT, 1987). The results obtained are tabulated and interpreted, in accordance with current legislation, regulations and consolidated scientific documents. To assess water quality and limnology, the calculations of indicators recommended in the PBA of the project are used.

#### Baixo Iguaçú Hydroelectric Power Plant

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The objective of the programme is to evaluate the limnological conditions, the quality of the water and the sediments in the areas directly and indirectly affected by the plant in the post-filling period, in order to generate information to compare it with the period prior to filling, and thus offering subsidies for the proper management and multiple use of the future reservoir and its areas of influence.

#### Baguari Hydroelectric Power Plant

The monitoring programme is carried out from before the collection barrier, with 8 sampling points in the reservoir and its surroundings and quarterly campaigns. The low residence time of the reservoir (lotic), and its formation very close to the natural course of the Doce River, justifies the maintenance of water quality conditions similar to those found in the middle section of the Doce River, or those upstream.

#### Dardanelos Hydroelectric Power Station

The objective of the Limnological and Water Quality Monitoring Programme is to monitor the water quality of the Aripuanã River in the area of interference of the Dardanelos Hydroelectric Power Plant, seeking to maintain the natural productive potential of the aquatic ecosystem. The Limnological and Water Quality Monitoring Programme of the Dardanelos Hydroelectric Power Plant has 11 (eleven) collection stations, called Station P1, Station P2, Station P3, Station P4, Station P5, Station P6, Station P7, Station P8, Station P10, Station P11 and Station P12, located in the section of the Aripuanã river and the Frei Canuto stream that crosses the project's Interference Area.

