Environmental

Iberdrola with nature

Nature-related governance

Decarbonisation

Protection of and action for biodiversity

Sustainable use of resources and the circular economy

STUDY CASES

Development and implementation of a birdlife protection system in wind farms using 3D radar and zoom cameras

Tree Programme

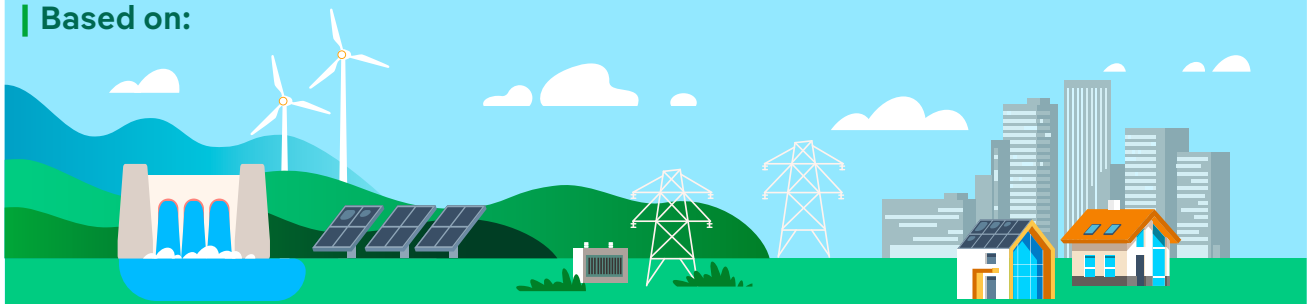
ECOncrete Marine Mattresses

Iberdrola with nature

Protecting the planet and the well-being of people are priorities that Iberdrola integrates into its business strategy and its business model. Nature is the foundation of our economy, and our well-being and progress would be compromised without a robust, healthy and functional environment. This is why decades ago Iberdrola made a firm commitment to the environment, focusing its activities on building an energy model in harmony with nature and with human beings and that would be competitive, resilient, based on local sources, and a source of sustainable development. In short, a model that allows value to be created without putting the future of new generations at risk.

An energy model in harmony with nature and human beings

Based on:



1. **Generation of electricity from renewable energy**
2. **Smart grids and efficient energy storage**
3. **Electrification of demand**

Climate Action Iberdrola

Iberdrola Biodiversity

Iberdrola Circular Economy

Action:

Climate Action Plan
- Carbon neutral by 2030 (generation and distribution)
- Zero emissions by 2040 (all activities)

Biodiversity Plan
- Net positive impact on biodiversity by 2030
- No net deforestation by 2025

Circular Economy Plan
- 50% reduction in raw materials
- Blade recycling

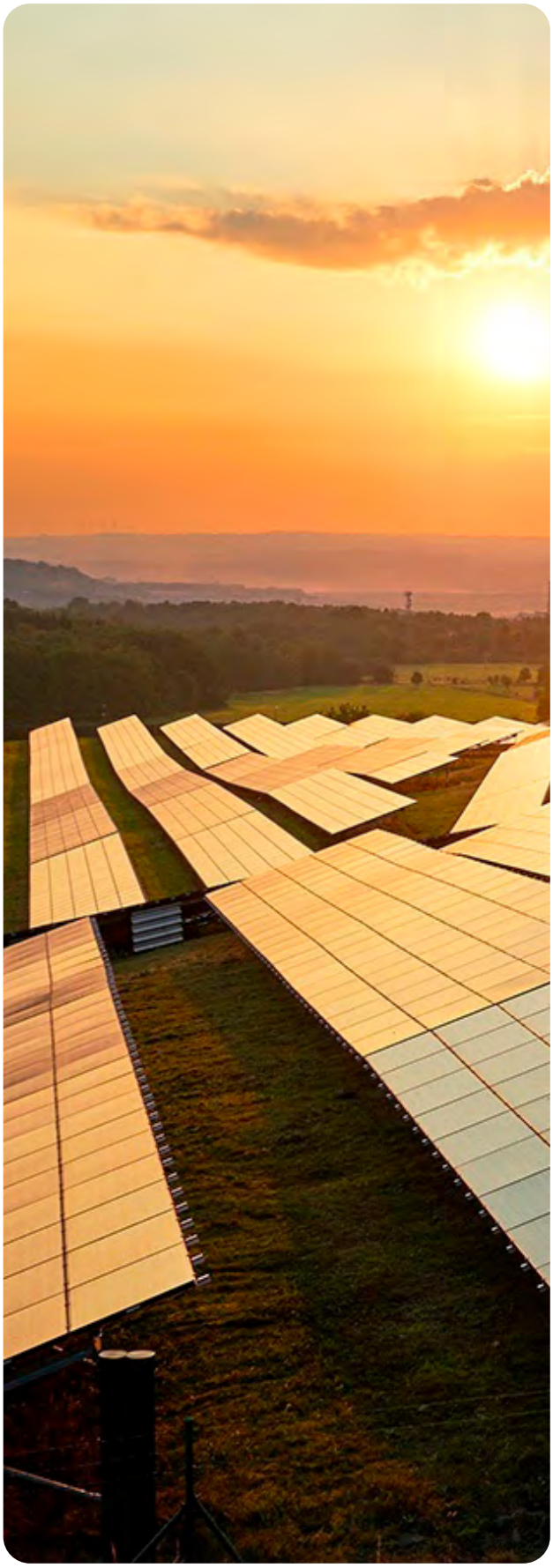
The group is committed to developing a sustainable energy model where the reduction of emissions, the conservation, protection and promotion of biodiversity, and the sustainable and efficient use of resources are integrated into all its activities and processes. This is a model in which Iberdrola is a leader and is based on using renewable energies, smart grids, efficient energy storage and driving the electrification of demand as an energetic vector for competitive and efficient decarbonisation.

To ensure that the group's activities are carried out in harmony with nature, Iberdrola works on three fronts that make up the "Iberdrola Nature Positive" vision:

- **Climate action Plan:** establishes an ambitious roadmap aimed at achieving zero net emissions of CO_2 equivalent by 2040. This Plan describes the levers, actions and associated metrics that contribute to the decarbonisation of Iberdrola's businesses and promote the electrification of the economy.
- **Biodiversity Plan:** sets a goal for a net positive impact on biodiversity by 2030 and envisages mechanisms to measure, act and support transformation to curtail and reverse biodiversity loss.
- **Circular Economy Plan:** defines the work guidelines and targets that will steer the company towards reducing the use of raw materials, advocating a greater use of renewable and recycled materials, improving the efficiency of our processes, products and services, and committing to maximising the value of waste so as to head into a future without unused waste.

The companies of the group regularly review and update the action plans associated with each line of work.

Nature-related governance



Iberdrola's commitment to the environment and sustainable development is set forth in its Governance and sustainability system which is based on ESG criteria and is intended to ensure, in regulatory terms, the achievement of the Purpose and Values of the Iberdrola Group and the achievement of its corporate goals and objectives.

The three "Iberdrola Nature Positive" plans elaborate on the principles established by the Governance and Sustainability System. The content of these plans and their follow-up is reported to the governance bodies with responsibility in this area, as described in the section "An energy model in harmony with nature and human beings" of this report.

In addition to reporting to the various governance bodies such as the Sustainable Development Committee or the Risk Committee, the **Board of Directors** provides a **training and refresher programme for its members**, which encompassed topics related to the protection of biodiversity and other environmental aspects in 2023, as detailed in the section Good governance, transparency and stakeholder engagement.

Environmental policies

The environmental policies formally define and establish the Company's decisive response to the challenges, objectives and goals posed by climate change, preservation of the environment and the loss of biodiversity, while helping to identify and take advantage of the opportunities arising from the energy transition. They are therefore the expression of Iberdrola's commitment, shared by all its stakeholders, to create an integral business value that takes into account and respects the natural and environmental capital on which its activities are based. These policies form part of the Environment and Climate Action book of the Governance System. See section Governance and Sustainability System.

These environmental policies, which are in line with the objectives of the Paris Agreement, the United Nations 2030 Agenda for Sustainable Development and the Global Biodiversity Framework, are as follows:

Sustainable Management Policy

Iberdrola implements and promotes a sustainable energy model, with its actions aimed at contributing to the Sustainable Development Goals (SDGs). Its activities are therefore designed so that they are environmentally sustainable, competitive, with high quality of service, that generate shared value, that respect human rights, and that promote the use of energy. The instruments used to reduce the environmental impact associated with its operations include an ambitious climate action, focusing on the conservation and protection of biodiversity, improving the circularity of its activities and its suppliers, promoting the rational and sustainable use of water, and avoiding or mitigating polluting emissions and their effects on human health.

Environmental Policy

Iberdrola's *Environmental Policy* sets out the principles for developing a sustainable model that respects nature, biodiversity and historical heritage and that promotes the conservation, protection and promotion of the development and growth of natural heritage through innovation and Stakeholder engagement. It therefore implements a common environmental management model for the group, which applies the precautionary principle and the principle of continuous improvement, places the environment at the centre of the decision-making process, and is in line with the Sustainable Development Goals (SDGs).

The policy also defines three high-priority lines of action, namely: reduction of emissions, circular economy, and protection of biodiversity and natural capital. All of these pillars are essential to achieving fully sustainable activity in harmony with nature.

Biodiversity Policy

The *Biodiversity Policy* establishes the principles of conduct for implementing a business model in harmony with nature and aligned with the Global Biodiversity Framework so that its activities protect and promote the development and growth of natural assets. In this policy, Iberdrola makes a formal commitment to ending and reversing the loss of biodiversity, and to generating a net positive impact on biodiversity in the context of its operations and activities.

This *Biodiversity Policy* establishes four lines of action for these purposes: protect biodiversity and ensure the sustainable use of natural capital; identify, quantify and continuously assess the impacts and dependencies of the group's activities; work with Stakeholders; and enhance, raise awareness and communicate internally and externally with transparency.

Climate Action Policy

This policy establishes the framework for Iberdrola's strategy and business model, **which is in line with the Paris Agreement and the 2030 Agenda**, in the fight against climate change. Through this policy Iberdrola is committed to continue assuming a **leadership position** (directly and by establishing alliances), promoting **awareness** (impacts, challenges and benefits of its achievement) and contributing to a **carbon neutral and sustainable future**.

For more detailed information, see section Climate action.

Managing nature-related risks and opportunities

Our "**Iberdrola Nature Positive**" roadmap, with its Climate Action, Biodiversity and Circular Economy plans, is a key tool for avoiding and minimising risks and realising opportunities related to nature.

For years, and as part of its Comprehensive Risk Management and Control System, Iberdrola has been analysing and identifying the environmental risks of its activities and these processes. This system is supervised and governed by a Risk Committee and by the independent and specialised Internal Audit and Risk Division, reporting functionally to the Audit and Risk Supervision Committee, which in turn analyses and quantifies the risks present in the Group's main businesses and corporate functions. See section Long-term risks and opportunities. Comprehensive Risk System.

Following the recommendations of the Task Force on Nature-related Financial Disclosures (TNFD), Iberdrola has updated its risk and opportunity analysis. To do so, Iberdrola conducted a materiality analysis of the impacts and dependencies of each of its technologies and life cycle phases. The results of this assessment made it possible to identify, for each technology, the main nature-related risks and opportunities to be expected in the face of critical physical events (both short/medium-term acute and long-term chronic) and transitional events (arising from possible changes in the regulatory, technological, reputational or market framework).

The impacts, dependencies, risks and opportunities identified and the actions taken by Iberdrola are described below.

Identification of impacts and dependencies

Iberdrola identifies the potential impact drivers that influence the degradation of nature in order to avoid, minimise, mitigate or offset them by applying the mitigation hierarchy principles set out in its biodiversity policy. It also identifies natural capital dependencies so that actions can be taken to reduce them and manage possible risks arising from them.

In line with the TNFD recommendations, Iberdrola has used the ENCORE and STBN materiality tools to conduct an initial high-level materiality analysis to assess the potential impacts and dependencies of its main technologies. These were cross-checked with the results of the assessment of the Natural Capital Working Group of the Spanish Energy Sector and reviewed by internal experts to adjust it to the Group's specific circumstances. The analysis presented here is applied by technology area, and Iberdrola is working to implement the TNFD recommendations at the facility level.

The results of this analysis, classified according to ENCORE, are shown in the following tables.

Significance of potential impacts on drivers

Drivers	Sub-driver	Technologies						
		Solar	Onshore wind	Offshore wind	Hydroelectric	Combined cycle and cogeneration*	Nuclear	Networks
Changes in land/ sea use	Use of land ecosystems	▲	▲		▲			▲
	Use of aquatic ecosystems				▲			
	Use of marine ecosystems			▲				
Exploitation of resources	Water				●	■	■	
	Other: supply services	▲	▲	▲	▲			▲
Climate change	GHG emissions					■		■
	Other: regulation services				■			
Pollution	Non-GHG emissions					■	■	
	Water/Soil	▲	■		■	■	■	
Invasive species and others	Other biological alterations		■	■	■			■
	Disturbances		▲	▲	▲	■	■	▲

▲ New developments ■ Operations and maintenance ● Both

Very low	Low	Medium	High	Very high

* No new thermal or nuclear developments are evaluated

The analysis shows that, excluding emissions of Greenhouse Gases (GHGs), the group's main potential material impacts in terms of the degradation of nature are:

- Changes in the state and extent of ecosystems brought about by the development of new renewable and grid infrastructures.
- The use and degradation of natural resources and supply services.
- Interaction with species during the development, operation and maintenance of renewable facilities and network infrastructure.

At each of the facilities, these potential impacts and dependencies are analysed and quantified using various metrics. Particularly noteworthy are the metrics defined in the Biodiversity Plan to assess the impacts of new developments on ecosystems (due to changes in land use) and the impacts on species of facilities in operation. In addition, Iberdrola calculates its Corporate Environmental Footprint to measure the impact of its activities considering their life cycle. By applying these metrics at its facilities, Iberdrola can make decisions and prioritise actions towards achieving the established objectives.

Material dependencies

Function	Ecosystem services	Technologies						
		Solar	Onshore wind	Offshore wind	Hydroelectric	Combined cycle and cogeneration*	Nuclear	Networks
Direct physical inputs	Water supply				■	■	■	
	Wind resource		■	■				
	Solar radiation	■						
	Mineral and non-mineral resources					■	■	
Enables production process	Water flow management services				■	■	■	
	Water quality				■	■	■	
Mitigating direct impacts	Bioremediation				■	■	■	
	Filtration				■	■	■	
Protection against interruptions	Climate regulation	■	■	■	■	■	■	■
	Flood and storm protection	■	■	■	■	■	■	■
	Soil stabilisation and erosion control	■	■	■	■	■	■	■

▲ New developments ■ Operations and maintenance ● Both

Very low | Low | Medium | High | Very high

* No new thermal or nuclear developments are evaluated

The analysis shows that Iberdrola's main nature-related material dependencies are:

- The use of renewable resources (water, wind and sun) and mineral and non-mineral resources (gas and uranium) that act as direct physical inputs.
- Regulating ecosystem services such as erosion, flood and storm protection, water climate control, etc. that can disrupt operations and increase running costs.
- The service for regulating the hydrological cycle, necessary for energy production in hydroelectric power plants and cooling processes in thermal power plants.

Risks and opportunities

Based on TNFD recommendations, risks and opportunities are identified according to potential impacts and material dependencies in three categories: physical risk, transition risk and systemic risk.

- **Nature-related physical risks** are risks to an organisation stemming from the degradation of nature and the consequent loss of ecosystem services supporting economic activity. These risks can be chronic (e.g. increasing erosion rates leading to increased dam maintenance costs) or acute (e.g. caused by extreme events such as fire or spills).
- **Nature-related transition risks** are those resulting from a misalignment between economic agents and their actions aimed at protecting, restoring and/or reducing negative impacts on nature. These risks can be prompted, for example, by changes in regulations and policies, legal precedent, technology, or shifts in investor perceptions and consumer preferences.
- **Nature-related systemic risks** are risks to an organisation that arise from the failure of the whole system, as opposed to the failure of individual parts. These risks typically involve tipping points which combine indirectly to cause major failures, where one loss triggers a chain of other losses and prevents the system from functioning.

The following table shows the risks, key management measures and opportunities identified as a result of this analysis.

	Description	Management/mitigation	Opportunities
Physical risks	The impact on ecosystems protected or high value can increase the cost in measures corrective measures or the rejection/delay of the approval of the project. Changes in availability of resources can reduce or interrupt production. Changes in conditions weather and extreme events that cause the interruption or reduction in production. Increased erosion, flooding and fire impacts due to the degradation of the ecosystem can lead to higher maintenance/repair costs. Pollution that exceeds environmental and regulatory thresholds can cause a disruption or a reduction in production and lead to increased costs associated with remediation and fines. Impacts on protected species can cause a disruption or a reduction in production and lead to increased costs associated with remediation and fines.	Goal of Net Positive Impact on biodiversity by 2030 Biodiversity Policy. Avoid facilities in protected areas. Implementing hierarchy mitigation and conservation. Biodiversity Plan 2030. Circular Economy Plan 2030. Diversification of generation technologies and geographies. *"Meteoflow"* forecasting system Pumping projects at existing hydroelectric plants. Group Environmental Management System Actions to prevent pollution, improve energy efficiency and reduce water consumption. Adapting pylons and installing anti-collision and anti-electrocution systems / Undergrounding of overhead lines. Installing deterrent systems and detection cameras at wind farms. Vegetation management plans Detection and warning systems and emergency plans. Compliance with applicable legislation. Insurance	Leading the energy transition in harmony with nature and human beings. Improved competitiveness in both new developments and operations. Improved stakeholder relations. New pumping projects at existing facilities. Innovation, research and development of new, more resilient technologies. New business opportunities such as those based on Nature-Based Solutions
Transition risks (regulatory/claims)	More stringent wildlife protection policies that increase the CAPEX/ OPEX of the project and/or reduce new development opportunities.	Sound internal governance, in line with best practice. Iberdrola's roadmap positive with nature. Internal launching of initiatives focusing on social and biodiversity aspects such as the Convive Project Identification and analysis of nature-related risks in new investments and operations. Goal of Net Positive Impact on biodiversity by 2030 Stakeholder Management Model. Participation in alliances and working groups. Technological diversification	Long-term development of more resilient and competitive projects. Energy transition in harmony with nature and human beings. New designs in projects that address land use compatibility and contribute to the local economy. Improved brand image and consumer preference. Advantages in raising funds in the face of increasing pressure from the financial sector and capital markets. Positioning on indices and improvement in stakeholder relations. Innovation, research and new business opportunities with investment in new technologies.
Transition risks (reputational)	Potential conflicts with interested parties when establishing new developments in areas where services are provided (agriculture, livestock or forestry) may limit the opportunities for new developments. Failure to meet the demands of stakeholders with impact on brand reputation.		
Transition risks (market)	Stricter financial requirements for nature-related impacts and dependencies may have a bearing on access to finance or investment. Increase in demands of stakeholders with negative effects on competitiveness.		
Transition risks (technological)	Adjustment to new technologies with less impact or dependence / Implementation of new, immature technologies to reduce the impact or dependence		

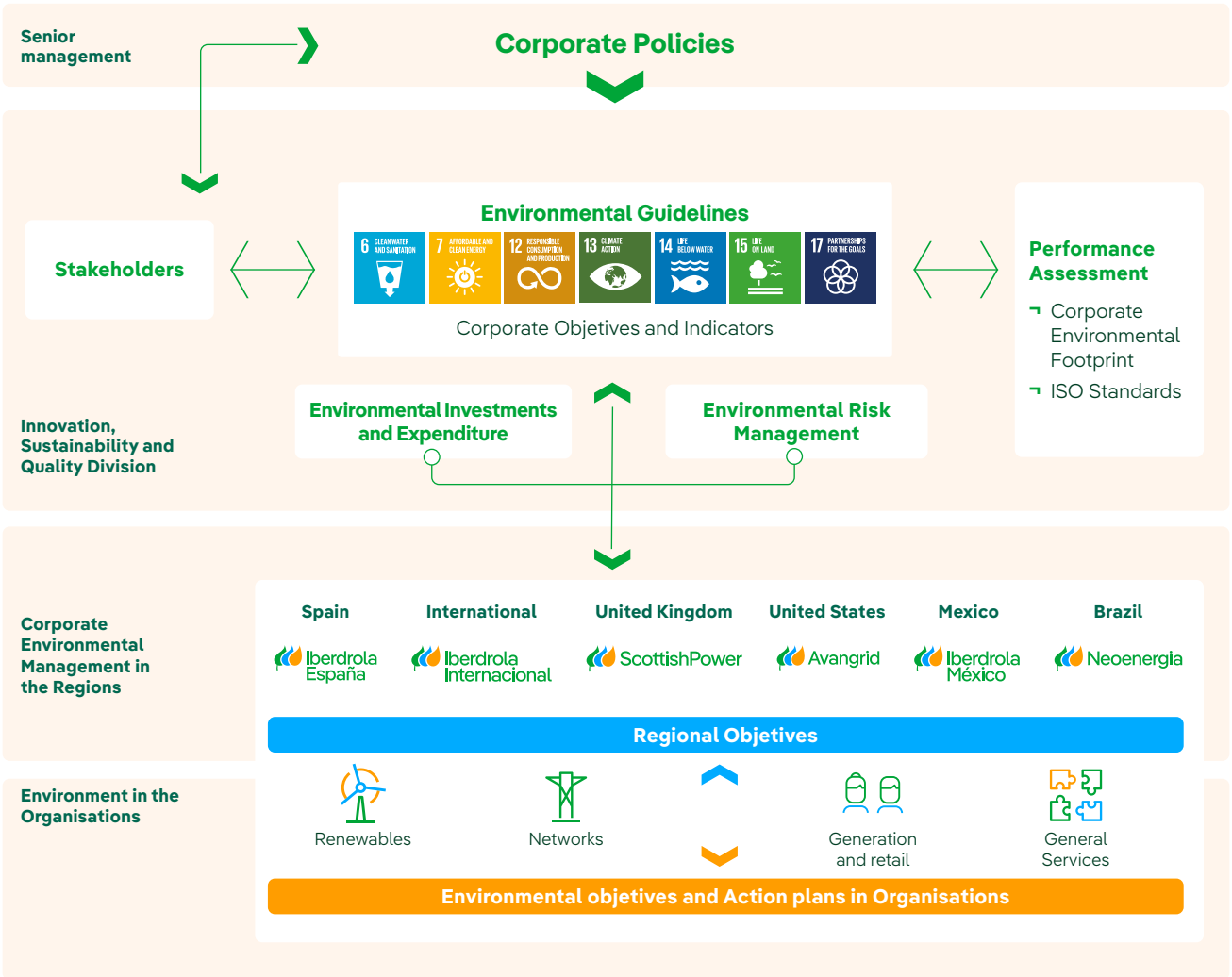
Iberdrola is a TNFD Early Adopter and has therefore committed to publish a report following TNFD's recommendations by 2024 or sooner..

Environmental management

Environmental management system

Iberdrola has demonstrated its firm commitment to the environment, focusing its activities on the construction of an energy model in harmony with nature and with human beings, in which the reduction of emissions, the conservation, protection and promotion of biodiversity, and the sustainable and efficient use of resources are integrated into all its activities and processes.

The Group's environmental management model is the cornerstone for identifying and adapting to the needs of each of the countries and regions in which it does business, taking advantage of the experiences of each market to strengthen brand values and, beyond the location of the business, to create an environmental management model that ensures the continuous improvement of processes, risk management and impact mitigation, all from the life cycle analysis perspective.



As described above, Iberdrola's environmental policies lay down the action framework for the Company to develop a sustainable model that respects nature, biodiversity and historical heritage and that promotes Stakeholder engagement in the business model.

In line with such policies, environmental guidelines are established that reflect the strategic environmental lines of action, which are in turn deployed through environmental goals and action plans across Iberdrola's various organisations.

This management model makes it possible to:

- Define the environmental guidelines as strategic lines of the Iberdrola Group in environmental matters.
- Obtain an overall assessment of environmental performance at Group level, through a single reporting system that facilitates the integration and management of environmental information.
- Support sustainable economic development through investment that promotes environmental sustainability.
- Reduce environmental risks, thereby improving the company's environmental management in line with its environmental protection commitments.

Corporate environmental footprint

To gauge the group's environmental performance, Iberdrola calculates its Corporate Environmental Footprint (CEF), which is a multi-criteria measure of environmental performance from a life cycle perspective (ISO/TS 14072:2014 standard).

The Corporate Environmental Footprint is part of the company's environmental management model, the ultimate goal of which is to bring the environmental aspect into line with the company's sustainability model, integrating the universality of service, safety, competitiveness, energy efficiency and the reduction of the company's environmental impact, all from a life cycle perspective.

The calculation of the Corporate Environmental Footprint at Iberdrola has meant that the group has been able to:

- Demonstrate transparency and consistency in environmental management.
- Improve the identification of opportunities to reduce its environmental impact.
- Drive innovation and business capabilities that seek continuous improvement in environmental management.
- Obtain recognition by third parties of Iberdrola's position and achievements, including the fight against climate change, the destruction of the ozone layer, and the depletion of natural resources.

Iberdrola calculates its environmental footprint using the rules defined in the REEF (Rules Electricity Environmental Footprint) project, which it participated in developing.

For more information, see Corporate Environmental Footprint.

Certifications

Iberdrola's environmental management system is rooted in international procedures and standards that are audited by prestigious independent agencies. The company currently holds the following environmental certifications:

- **ISO 14001-2015.** This standard covers activities consisting of the product generation, transmission, distribution and marketing, office management and general services. In particular, more than 80% of its energy was generated at certified facilities in 2023.
- **Eco-Management and Audit Scheme (EMAS).** The group's thermal power generation plants hold certificates under this standard.
- **ISO 14064-2018.** Iberdrola verifies its greenhouse gas emissions under this standard.
- **ISO TS 14072-2014** under which Iberdrola verifies its Corporate Environmental Footprint. It is the only company in the industry to have obtained this certificate.
- **ISO 20121. Sustainable Event Management.** Under this standard, Iberdrola certifies the most important events for shareholders and investors, i.e. the General Shareholders' Meeting, presentations of results and Investor Day.

More information is available online, in the Certifications and verifications.

Investments and expenses

Iberdrola generally considers all expenses or investments regarding projects that have a clear environmental impact, whether direct or indirect, to be environmental expenses or investments, in accordance with the following categories:

- Expenses and investments involving emissions treatment equipment or systems for reducing the company's environmental impact.
- Expenses and investments involving improvements in the management and treatment of both hazardous and non-hazardous wastes.
- Reducing the company's environmental impact by removing contaminants from soil and water.
- Environmental preventive measures, including investments in new renewable facilities.
- Environmental management, including investments and expenses associated with improved management of the environment, in addition to the measures mentioned in the foregoing sections.

All of this is aimed at moving toward a more sustainable energy model.

Environmental expenses and investments (€ thousand)			
	2023	2022	2021
Environmental investments	4,725,302	5,977,344	4,842,496
Environmental expenses	257,735	676,431	705,995

Reserves and insurance coverage for environmental risks

Iberdrola also has insurance policies that cover environmental risks. The main types of corporate insurance policies that the company has obtained with environmental coverage are:

- Environmental Liability Insurance.
- Civil Liability Coverage for Sudden Accidental Pollution in the general civil liability policy.

Decarbonisation

Iberdrola is a global leader in the energy transition and the fight against climate change within the energy sector. Its ambitious decarbonisation targets place it among the most advanced companies in this regard.

The Climate Action Plan establishes the levers, actions and associated metrics which in turn contribute to the decarbonisation of the economy as a whole, as well as the values supporting it. Iberdrola aspires to achieve carbon neutrality for its Scopes 1 and 2 by 2030, offsetting any residual emissions after 2030, in accordance with the highest quality standards.

The ultimate aspiration of this commitment is to achieve a balance of Net Zero emissions before 2040. Thus, by 2039, the group's absolute emissions will have been reduced by 90%, and residual emissions will be neutralised.

Intensity of greenhouse gas (GHG) emissions

The intensity of CO_2 emissions is calculated based on direct emissions from the production[1] facilities divided by the group's net output, including steam.

The following table shows the intensity of emissions.

CO_2 equivalent emissions (t)			
	2023	**2022[2]**	**2021**
Specific emissions from global mix (Kg CO_2/MWh)	77	83	96
Specific emissions from global mix (Kg CO_2/€)[3]	0,204	0,198	0,316

In 2023, CO_2 emissions per MWh generated remained among the lowest among domestic and international energy companies, and continue to follow the downward path set out in our climate action plan.

(1) See the "Direct greenhouse gas emissions. Scope 1 (per GHG Protocol)" section below

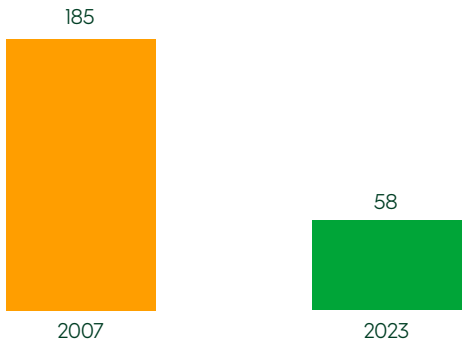
(2) In the course of the year, it was found that the emissions reported by a combined cycle power plant in Mexico were incorrectly allocated. This affected emissions indicators Scope 1,Scope 2 ,Scope 3 although the total emissions value of the Group's three Scopes was properly reported. The relevant figures for 2022 have been updated in this report.

(3) Direct emissions from energy generation facilities (Scope 1) compared to revenues in EUR (Economic/financial impact)

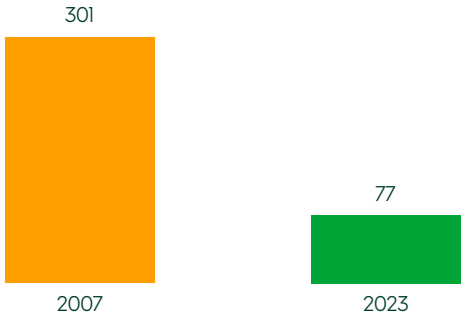
Iberdrola's transformation to **climate neutrality**, fully consistent with the achievement of a more efficient, competitive, clean and sustainable economic system, has cemented the company's position as the **largest non-coal-production electricity company in the world**, and **places CO_2 emissions at 55 g/kWh in Europe, 80% lower than its European competitors.**

Specific CO_2 (kg CO_2/MWh) emissions from facilities in Europe [4]

Intensity of emissions in Spain (g CO_2 / kWh)



Overall intensity of the group's emissions (g CO_2 / kWh)



For more information you can consult the section on Emissions intensity of the corporate website

(4) The figure of 55 g CO_2 in this chart refers to emissions generated by Iberdrola's facilities in Europe during 2023. The data on the "European average carbon factor" and the data for the other companies are sourced from Climate Change and Electricity: European carbon factor. PwC France. Dec. 2023 and, in the case of companies, include only the European area for 2022.

Inventory of Greenhouse Gas (GHG) Emissions

The inventory (with data available as of the date of approval of this report) is given below.

Emisiones de CO_2 equivalentes a verificar en el año 2023 (t)							
	Spain	**United Kingdom**	**United States**	**Brazil**	**Mexico[5]**	**IEI**	**Total**
Scope 1: Direct emissions	3,745,409	39,374	1,636,499	104,025	5,009,574	52,708	**10,587,589**
Scope 2: Indirect emissions	832,776	499,418	185,746	208,392	13,106	7,389	**1,746,827**
Scope 3: Other indirect emissions	2,330,075	6,989,095	8,890,579	1,678,035	17,656,344	1,760,022	**39,304,151**

Neoenergia's Termopernambuco plant, Termope, did not enter into operation in 2022. This resulted in a dramatic drop in direct emissions in Brazil (-89%), which significantly contributed to a drop of more than 10% in the group's scope 1 emissions.

Iberdrola's inventory of emissions is verified by AENOR in accordance with UNE ISO 14064-1:2018 for the direct and indirect emissions from all of its activities.

The verified information is available in the Greenhouse Gas Inventory (Carbon Footprint) section of the corporate website.

Direct greenhouse gas emissions. Scope 1 (per GHG Protocol)

Direct emissions are emissions from GHG sources owned or controlled by the company. They include:

- Emissions that result from the consumption of fuel and that are produced by owned facilities that generate electrical power.
- Emissions of methane (CH_4) and nitrous oxide (N_2O) associated with fuel consumption.
- Emissions from non-generation (gas storage) facilities.
- Fugitive emissions of methane (CH_4) [6] (storage and transport of natural gas).
- Fugitive emissions of sulphur hexafluoride (SF_6) (distribution networks, substations, generation plants, etc.).
- Fugitive emissions of coolant gases.
- Emissions from facilities that provide services to buildings (fuel consumption).
- Emissions from mobile combustion sources associated with road transport of employees with fleet vehicles for work purposes.

The emission factors used to calculate each of these emissions are obtained from official sources.

(5) As noted in the EU2 indicator of the "Key operating figures" section, Iberdrola uses the reporting criteria regarding its generation activities in this report, distinguishing between its "own" output and installed capacity and output and installed capacity "for third parties". The latter parameter reflects the particular operating conditions of some of our plants in Mexico, which Iberdrola operates as an Independent Power Producer (IPP) under the auspices of the Mexican Federal Electricity Commission (*Comisión Federal de la Electricidad*) (CFE). Under these conditions, Iberdrola believes that the IPP plants do not comply with the requirement set out in the GHG Protocol regarding "full authority to introduce and implement operating policies at the operation" in order to be included in Scope 1.

(6) These leaks, s, produced by venting, fugitive, pneumatic and unburned, account for 0.79% of the gas distributed.

The following two tables show the changes in Scope 1 emissions from production facilities and other facilities (offices, vehicle fleets, etc.):

CO_2 emissions at Scope 1 production facilities (t CO_2 eq)			
	2023	**2022**	**2021**
Thermal generating plants	7,123,465	7,756,075	9,175,358
Cogeneration	2,826,713	2,839,174	3,515,703
Other emissions	100,732	85,876	63,101
Total	**10,050,910**	**10,681,125**	**12,754,162**

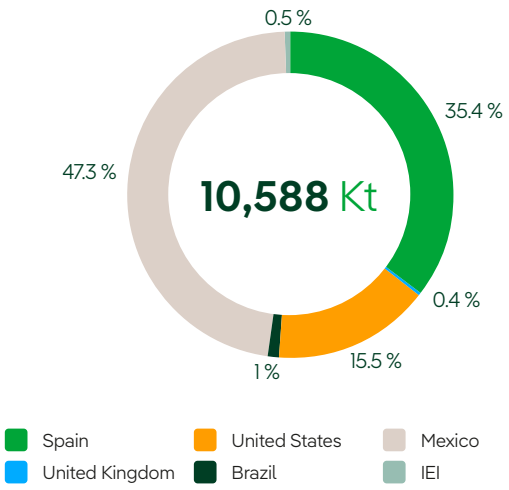
Stationary combustion emissions, from generation, account for more than 99% of total Scope 1 emissions.

- Gross global Scope 1 emissions are: 10,587,589 tCO_2 eq.
- Percentage covered under emissions-limiting regulations: 95%(Only Europe is subject to emissions-limiting regulations).
- Percentage of gross global Scope 1 GHG emissions covered under emissions-reporting regulations: 100%.
- Iberdrola reports 100% of its emissions as it is regulated in all countries where it operates.

Other Scope 1 emissions (t CO_2 eq)		
	2023	**Fuente de los factores de emisión**
CH_4 and N_2O emissions from combustion **(Non-renewable generating plants)**[7]	43,531	IPPC[8]
CH_4 Fugitive Emissions **(Gas storage and transport)**	222,913	IPCC
SF_6 Fugitive Emissions **(Electricity distribution)**	55,756	IPCC
Emissions in buildings **(Fuel consumption)**	96,515	MITECO: Spain. DEFRA: United Kingdom, Mexico and Brazil. EPA: United States, Mexico and Brazil.[9]
Emissions from mobile combustion **(Fleet vehicles)**	91,600	DEFRA: Spain and United Kingdom. EPA: United States, Mexico and Brazil.
Other emissions **(Gas storage, coolant gases)**	26,362	DEFRA: United Kingdom.
Total	**536,677**	

The percentage of Scope 1 emissions by geographical area in which the company operates is shown below:

Scope 1 CO_2 emissions by geography



For more information, see the climate action section of the corporate website.

(7) Only emissions associated with owned generation are included.
(8) IPCC: Intergovernmental Panel on Climate Change.
(9) MITECO: Ministerio de Transición Ecológica / EPA:Environmental Protection Agency (United States).

Indirect greenhouse gas emissions. Scope 2 (per GHG Protocol)

Indirect emissions are those emissions deriving from the company's activity but generated by other entities, including emissions from the generation of electricity acquired for the company's consumption. These emissions are:

- Emissions associated with the consumption of electrical power during shutdowns of the thermal, renewable and nuclear plants, and during pumping at the hydroelectric plants.
- Emissions associated with electricity consumption in the group's buildings.
- Emissions associated with network losses during the distribution and transmission of electricity to third parties.

CO_2 is calculated by applying the emission factor of the generation mix of the respective country:

- Spain: Red Eléctrica de España
- United Kingdom: DEFRA
- United States: U.S. Energy Information Administration
- México: SEMARNAT
- Brazil: Ministry of Science, Technology and Innovation for Brazil

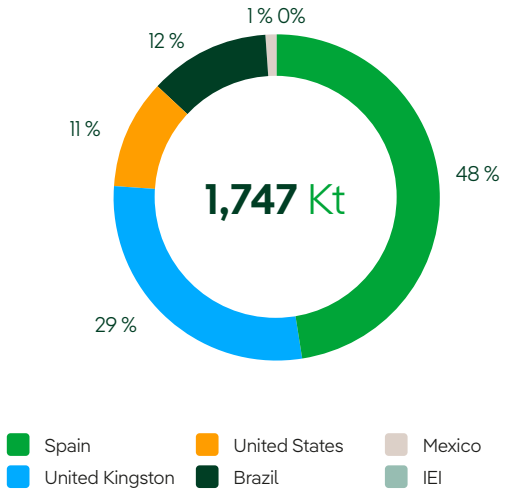
Iberdrola continues to reduce its indirect emissions, in particular energy emissions in buildings, due to its increased use of green energy.

100% of the electrical power consumed by offices in the United Kingdom and Spain was renewable in 2022.

Scope 2 emissions (t CO_2 eq)			
	2023	**2022**	**2021**
Emissions associated with network losses	1,000,465[10]	1,142,181	1,830,631
Emissions associated with consumption of electric energy during shutdowns and pumping	690,214	713,674	310,100
Emissions associated with the electricity consumption in buildings	56,148	23,526	21,253
Total	**1,746,827**	**1,879,381**	**2,161,984**

The percentage of Scope 1 emissions by geographical area in which the company operates is shown below:

Scope 2 CO_2 emissions by geography



(10) The annual review and update of emission factors has led to a decrease in the figures for the United States and Brazil.

Other indirect greenhouse gas emissions. Scope 3 (GHG Protocol)

Iberdrola has incorporated the life cycle perspective into its management model, which includes knowing the long-term impacts of the value chain. New elements are thus included each year in the calculation of its Scope 3, indirect emissions that result from the company's activities at sources not owned or controlled by it. They include the following:

- Emissions (due to fuel consumption) from electrical power generation facilities used in production for third parties. (GHG Protocol Category 3).
- Emissions associated with the transport of employees for work purposes (hired and private vehicles, aircraft and trains). (GHG Protocol Category 7).
- Emissions associated with the supply chain. (GHG Protocol Category 1 and 2).
- Emissions associated with the transport of employees commuting from their residence to their workplace. (GHG Protocol Category 6).
- Emissions associated with electrical energy purchased from third parties for sale to end customers (GHG Protocol Category 3, Activity D).
- Emissions associated with gas purchased from third parties for sale to end customers (GHG Protocol Category 11).
- Emissions arising from activities upstream of the fuels purchased and consumed[11] (GHG Protocol Category 3, Activity A).

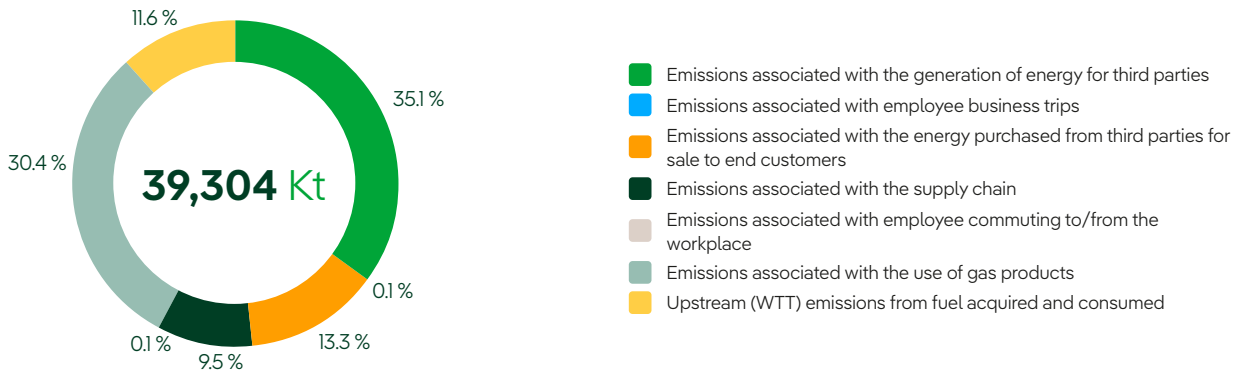
The emission factors used in calculating each of these emissions are obtained from official sources.

In 2023 Scope 3 emissions were as follows:

Scope 3 emissions (t CO_2 eq)			
	2023	2022	2021
Emissions associated with the generation of energy for third parties	13,784,510	13,088,855 [12]	12,171,586
Emissions from employee business travel	22,124	12,458	7,435
Emissions associated with the use of gas products[13]	11,960,416	13,641,153	14,452,313
Emissions associated with the supply chain	3,730,983	2,944,448	3,422,571
Emissions associated with employee commutes to/from the workplace	33,256	51,800	28,870
Emissions associated with the energy purchased from third parties for sale to end customers [14]	5,208,446	8,328,229	9,681,117
Upstream (WTT) emissions from fuel acquired and consumed	4,564,415	4,612,263	4,850,721
Total	**39,304,150**	**42,679,206**	**44,614,613**

The percentage of Scope 3 emissions by emission type is shown below:

Scope 3 CO_2 emissions by typology



For more information on Scope 1, 2 and 3 emissions, see the Greenhouse Gas (GHG) Report which is audited annually under ISO 14064-2018.

(11) This category includes fuel transport as part of the lifecycle.

(12) Durante el ejercicio, se detectó una incorrecta asignación de las emisiones reportadas por una planta de ciclo combinado en México. Esto afectó a los indicadores de emisiones 305-1, 305-3 y 305-4, si bien el valor total de las emisiones de los tres alcances del grupo fue correctamente reportado. En este informe se han actualizado las cifras afectadas del año 2022.

(13) The reported value in the United States has been adjusted in the calculation to reflect the gas actually distributed to end customers to the detriment of the gas sold. The data for 2021 and 2020 have been recalculated to improve comparability.

(14) The reported value in the United States has been adjusted in the calculation to reflect total electric power distributed to end customers to the detriment of the power sold. The data for 2021 and 2020 have been recalculated to improve comparability.

Iberdrola México y Mexico Infrastructure Partners (MIP) han firmado un acuerdo vinculante por el que MIP adquiere un total de 8.539 MW, de los cuales el 99 % corresponden a ciclos combinados de gas, correspondiendo la gran mayoría (87 %) a plantas que operan bajo el régimen de Productor Independiente de Energía, contratadas con la CFE.

El acuerdo incluía una disposición por la que Iberdrola México seguiría operando las plantas durante el año 2023 hasta que se finalizara el proceso de venta. Es por ello que las emisiones asociadas a las plantas objeto de la venta siguen formando parte del inventario de emisiones de Iberdrola en este informe.

Excluyendo las emisiones producidas por las instalaciones vendidas, las emisiones de alcance 3 del grupo se reducirían en 2023 un 35 % hasta las 25,5 Mt CO_2eq.

Reduction of greenhouse gas emissions

Initiatives to reduce emissions are undertaken through a broad range of products and services promoting energy efficiency and savings.

Initiatives for reducing emissions		
Areas	**Actions and initiatives**	**CO_2 avoided in 2022 (t)**
Renewables	Primary energy savings through the production of renewable energy	17,507,041
Cogeneration	Savings through the supply of heat energy (steam) within the group	367,640
Network efficiency	Savings from distribution network efficiency (Spain, United Kingdom and Brazil)	44,507
Commercial	Energy savings and efficiency through green products and services (Spain, United Kingdom, United States and Brazil)	8,754,122
Total		**26,673,310**

Allocation of CO_2 emissions rights or equivalent

Only the generation facilities located in Europe are subject to an emission rights trading system, for which reason this indicator does not affect the thermal generation facilities in Mexico, Brazil or the United States.

The facilities located in Europe (Spain) have not received free trading rights since 2013, for which reason they have to acquire the necessary rights at auction to offset the emissions produced.

Currently only the Tarragona Power combined cycle plant, with an allocation of 13,496 Tn emission allowances, and the cogeneration plants of EW Carballo and EW Monzón, with a total allocation of 12,235 Tn emission allowances, have free allocation within the facilities subject to the European Emissions Trading Scheme (ETS).

Other atmospheric emissions

Emissions of sulphur dioxide (SO_2), nitrogen oxides (NOx) and particulate matter are also created by burning fossil fuels. Because of the changes in the generation profile discussed in the emissions section, emissions tend to decrease with the incorporation of renewable energy and the support of modern combined cycle monitoring technologies.

NOx emissions

NOx emissions (t)			
	2023	**2022**	**2021**
Generating plants	53,725	52,761	51,630
Cogeneration plants	3,203	5,425	7,042
Total	**56,928**	**58,186**	**58,672**

Intensity of NOx emissions (kg/MWh)			
	2023	2022	2021
Specific emission from the global mix	0.337	0.354	0.365

Percentage of atmospheric emissions of NOx near densely populated areas: 62%..

SO_2 Emissions

Sulphur dioxide (SO_2) (t) emissions			
	2023	2022	2021
Generating plants	629	570	582
Cogeneration plants	140	441	598
Total	**769**	**1,011**	**1,180**

Intensity of SO_2 emissions (kg/MWh)			
	2023	2022	2021
Specific emission from the global mix	0.005	0.006	0.007

Percentage of atmospheric emissions of SOx near densely populated areas: 28 %.

Emissions of particulates

Emissions of particulates (t)			
	2023	2022	2021
Generating plants	1,095	1,072	1,055
Cogeneration plants	69	93	119
Total	**1,164**	**1,165**	**1,174**

Intensity of particulate emissions (kg/MWh)			
	2023	2022	2021
Specific emission from the global mix	0.007	0.007	0.007

Percentage of atmospheric emissions of PM10 particulate matter near densely populated areas 62%.

Emissions of other compounds

A total of 468.9 tonnes of non-methane volatile organic compounds (NMVOCs) were emitted.

Emisiones de sustancias que agotan la capa de ozono

Ozone-depleting substances have a very limited presence within the Iberdrola group, and are located primarily in fire-extinguishing equipment (Halon) and some cooling systems (chlorofluorocarbons, CFCs). These systems and equipment are maintained in accordance with the provisions of applicable legal provisions.

The only atmospheric emissions originating from these products would be those arising from potential losses, which are identified by the volumes used to recharge the equipment. Although Iberdrola's goal is to eliminate the presence of these emissions in its facilities, these substances continue to be used where their use is authorised and a better substitute has not been found on the market. 2023 no recharging of CFC gases has been necessary and therefore no emissions of this compound can be considered to have taken place.

Supplementary Information

Direct greenhouse gas emissions at production facilities, Scope 1 (per GHG Protocol)

CO_2 emissions at Scope 1 production facilities (t)			
	2023	2022	2021
Spain	**3,663,120**	**4,123,265**	**4,477,856**
Generating plants	2,733,914	2,954,193	2,985,589
Cogeneration	924,639	1,164,259	1,487,273
Other emissions	4,567	4,813	4,994
United Kingdom	**0**	**0**	**0**
Generating plants	0	0	0
Cogeneration	0	0	0
United States	**1,292,286**	**1,050,346**	**1,306,778**
Generating plants	0	0	0
Cogeneration	1,245,098	1,012,134	1,267,066
Other emissions	47,188	38,212	39,712
Brazil	**49,484**	**19,337**	**921,137**
Generating plants	49,484	19,337	921,137
Cogeneration	0	0	0
Mexico	**4,997,043**	**5,445,325**	**6,029,997**
Generating plants	4,340,067	4,782,544	5,268,632
Cogeneration	656,976	662,781	761,365
IEI	**48,978**	**42,851**	**18,395**
Generating plants	0	0	0
Cogeneration	0	0	0
Other emissions	48,978	42,851	18,395
Total	**10,050,911**	**10,681,124**	**12,754,162**
Generating plants	***7,123,465***	***8,421,306***	***9,175,358***
Cogeneration	***2,826,713***	***2,839,174***	***3,515,703***
Other emissions	***100,732***	***85,876***	***63,101***

Indirect greenhouse gas emissions. Scope 2 (per GHG Protocol)

CO_2 Emissions associated with the consumption of energy at offices(t)	
	2023
Spain	10,302
United Kingdom	12,520
United States	32,029
Brazil	1,565
Mexico	414
IEI	N/A [15]
Total	**56,830**

(15) It is not taken into account for the calculation of the Carbon Footprint as it accounts for less than 0.1% of the group's internal energy consumption.

NOx, SOx and other significant air emissions

Emissions of NO_2 (t)			
	2023	2022	2021
Spain	**2,142**	**4,462**	**5,652**
Generating plants	915	1,025	950
Cogeneration	1,227	3,437	4,702
United Kingdom	**0**	**0**	**0**
Generating plants	0	0	0
Cogeneration	0	0	0
United States	**72**	**68**	**134**
Generating plants	0	0	0
Cogeneration	72	68	134
Brazil	**7**	**2**	**194**
Generating plants	7	2	194
Cogeneration	0	0	0
Mexico	**54,706**	**53,655**	**52,692**
Generating plants	52,803	51,735	50,486
Cogeneration	1,903	1,920	2,206
Total	**56,928**	**58,187**	**58,672**
Generating plants	**53,725**	**52,761**	**51,630**
Cogeneration	**3,203**	**5,425**	**7,042**

Emissions of sulphur dioxide (SO_2) (t)			
	2023	2022	2021
Spain	**179**	**435**	**603**
Generating plants	66	19	34
Cogeneration	113	416	569
United Kingdom	**0**	**0**	**0**
Generating plants	0	0	0
Cogeneration	0	0	0
United States	**6**	**5**	**6**
Generating plants	0	0	0
Cogeneration	6	5	6
Brazil	**0**	**0**	**10**
Generating plants	0	0	10
Cogeneration	0	0	0
Mexico	**583**	**572**	**561**
Generating plants	563	551	538
Cogeneration	20	20	23
Total	**769**	**1,012**	**1,180**
Generating plants	**629**	**570**	**582**
Cogeneration	**140**	**441**	**598**

Emissions of particulates (t)			
	2023	2022	2021
Spain	**20**	**50**	**67**
Generating plants	14	13	15
Cogeneration	6	37	52
United Kingdom	**0**	**0**	**0**
Generating plants	0	0	0
Cogeneration	0	0	0
United States	**24**	**17**	**21**
Generating plants	0	0	0
Cogeneration	24	17	21
Brazil	**0**	**0**	**0**
Generating plants	0	0	0
Cogeneration	0	0	0
Mexico	**1,120**	**1,098**	**1,086**
Generating plants	1,081	1,059	1,040
Cogeneration	39	39	46
Total	**1,164**	**1,165**	**1,174**
Generating plants	**1,095**	**1,072**	**1,055**
Cogeneration	**69**	**93**	**119**

Protection of and action for biodiversity

Objectives and Biodiversity Plan 2030

At Iberdrola, we have strengthened our commitment to nature and set ourselves the goal of having a **positive net impact** on biodiversity by 2030, i.e., that by that year our activities have contributed to the preservation and improvement of biodiversity.

2030 GOAL

Net positive impact on biodiversity

This goal considers the impacts on species and ecosystems derived from the Iberdrola group activities throughout its entire facilities life cycle and is based on the application of the conservation hierarchy, as well as the implementation of mechanisms for its identification, quantification of impacts and monitoring of compliance.

2025 Goal: No net deforestation

As part of its actions to achieve this goal by 2030, Iberdrola also commits to ensuring that its activity does not generate net deforestation by 2025. This commitment applies both to direct actions and to actions in the group's supply chain.

Biodiversity Plan 2030

To achieve this ambitious goal, Iberdrola has launched the Biodiversity Plan 2030 (the "Plan"), which applies to all of the Iberdrola group's facilities and activities, and which has three areas of action: measure, act and transform.

Measure

- Biodiversity accounting framework for ecosystems and species
- Evaluation of all priority facilities by 2025 and all facilities by 2030

Act

- Ensure the application of conservation hierarchy
- All new projects and priority facilities in operation will have a biodiversity neutral/positive impact plan
- Deployment of nature-based solutions: Trees programme, biodiversity projects

Transform and lead

- Support actions for biodiversity on the international agenda: COP15 on biodiversity
- Create shared value: promotion of ecosystem services, R&D, supply chain, social awareness, etc.

This approach is aligned with the Science-Based Targets for Nature (SBTNs) and its vision of the Framework for Action "AR3T1" and with the landmark pillars provided by the Taskforce on Nature-related Financial Disclosures (TNFD).

The Biodiversity Plan 2030 is a continuation of years of work on the protection and preservation of biodiversity, and its integration into the strategic planning and decision-making of the group. The commitments and procedures derived from this Plan are:

- conservation hierarchy;
- equal compensation for impacts (i.e. with the same type of habitat and species affected);
- application of solutions based on the preservation of nature; and
- supply chain involvement.

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

Governance and biodiversity management

The degradation of ecosystems and the unprecedented decline in biological diversity, which the scientific community universally considers to be a direct result of the impact of human activities, entail grave environmental, economic and social risks. This requires urgent action to revert the loss of biodiversity.

Given the location of our infrastructure and their interaction with the territory, **Iberdrola** has believed for more than fifteen years that biodiversity is a material issue for its business model, and for this reason **places respect for biodiversity and ecosystems at the forefront of its business strategy**.

Since 2007, Iberdrola has had a *Biodiversity Policy* which forms part of its Governance and Sustainability System. In this policy, which was strengthened in 2021, Iberdrola commits to assuming a position of leadership in the fight against the loss of biodiversity and in generating a positive net impact on biodiversity from its activities.

These commitments involve integrating biodiversity into strategic planning, managing risk through continuous assessment of impacts and dependencies throughout the life cycle, applying the mitigation hierarchy (avoid, mitigate, restore and offset) in all our activities, avoiding the placement of new infrastructure in protected areas, implementing biodiversity action plans, working together with Stakeholders, and encouraging awareness and communication. It also entails promoting, along with its Stakeholders, a social culture in which biodiversity is valued, preserved, restored and sustainably used, maintaining ecosystem services, favouring a healthy planet, and providing essential benefits for all.

The *2030 biodiversity plan*, approved in October 2022 after being presented to the company's corporate bodies, is aligned with the goals approved in the *Kunming-Montreal Global Biodiversity Framework 2022*. Target 15 related to reporting impacts and dependencies on biodiversity is of particular relevance for the businesses and Iberdrola addresses this target in this report and in its *Biodiversity report*. Iberdrola has also continued to participate in the pilot programmes of the Task Force of Nature-related Financial Disclosure (TNFD) and in the Nature Positive Road Map of the WBCSD, contributing to several of its publications.

The **Board of Directors** provides a **training and refresher programme for its members**, which in 2023 covered topics related to the protection of biodiversity and other environmental aspects, as detailed in section "Good governance, transparency and stakeholder engagement".

In addition to the *Biodiversity Policy*, Iberdrola has the following mechanisms to integrate the protection and conservation of biodiversity within management, and for it to be taken into account in decision-making processes:

- *Biodiversity Policy*
- Comprehensive Risk Control and Management System
- Environmental Management System of the group
- Tools for evaluating impacts and dependencies
- Biodiversity Plan 2030
- Environment and biodiversity committees

Interaction with biodiversity

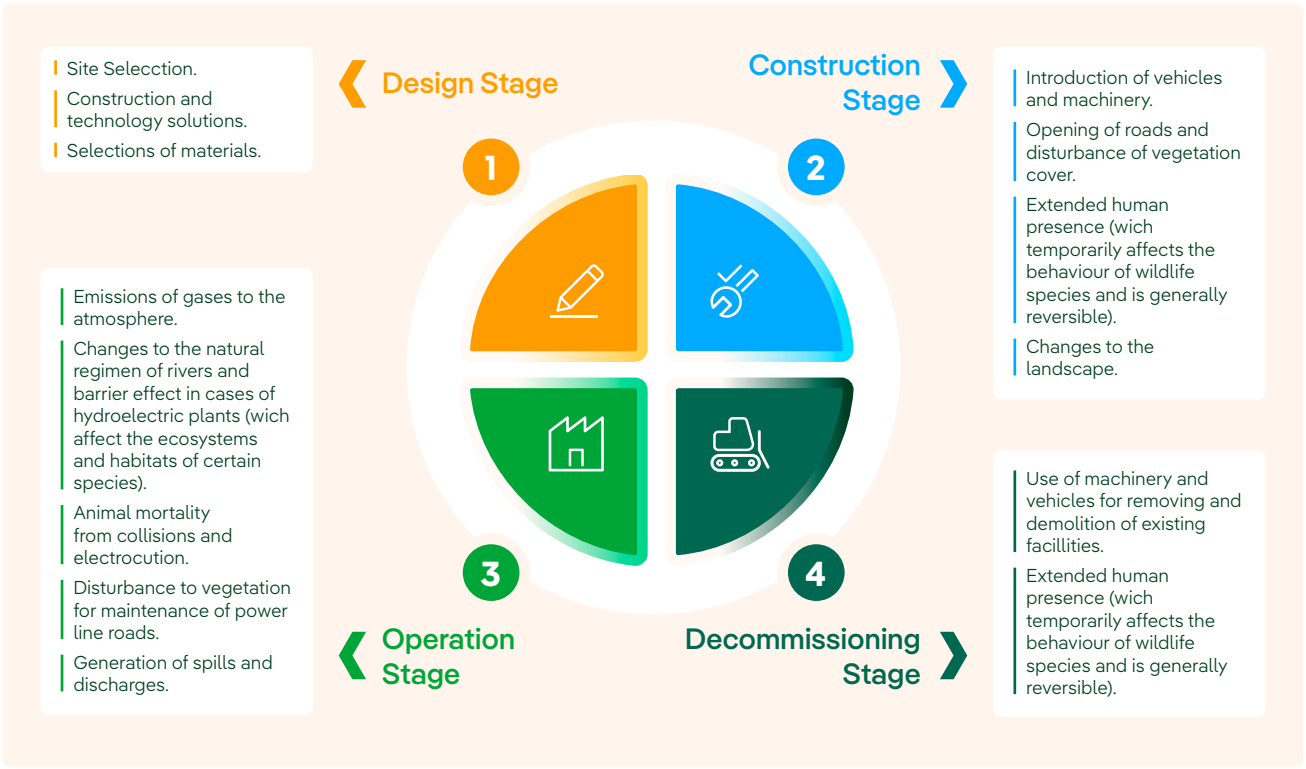
Main impacts

As described in the "Identification of impacts" section, Iberdrola identifies impacts stemming from the interaction of its activities on biodiversity and natural capital in order to avoid, minimise, remedy and/or offset these impacts. The identification of these impacts is an ongoing process throughout the life of the facility. Below are some of the information sources and tools used:

- Environmental impact assessments for new projects.
- Supervision and monitoring programmes during construction and operation.
- Continuous assessment of environmental aspects in the framework of environmental management systems.
- Compilation of impact metrics and calculation of the group's Corporate Environmental Footprint.
- Application of the ecosystem and species metrics of the Biodiversity Accounting Framework of the Group's Biodiversity Plan. In this regard, in 2023 Iberdrola continued work on implementing ways to quantify the net effect of our activities on biodiversity at several of our facilities in Spain, Brazil, the United Kingdom and Mexico, using international benchmark methodologies.

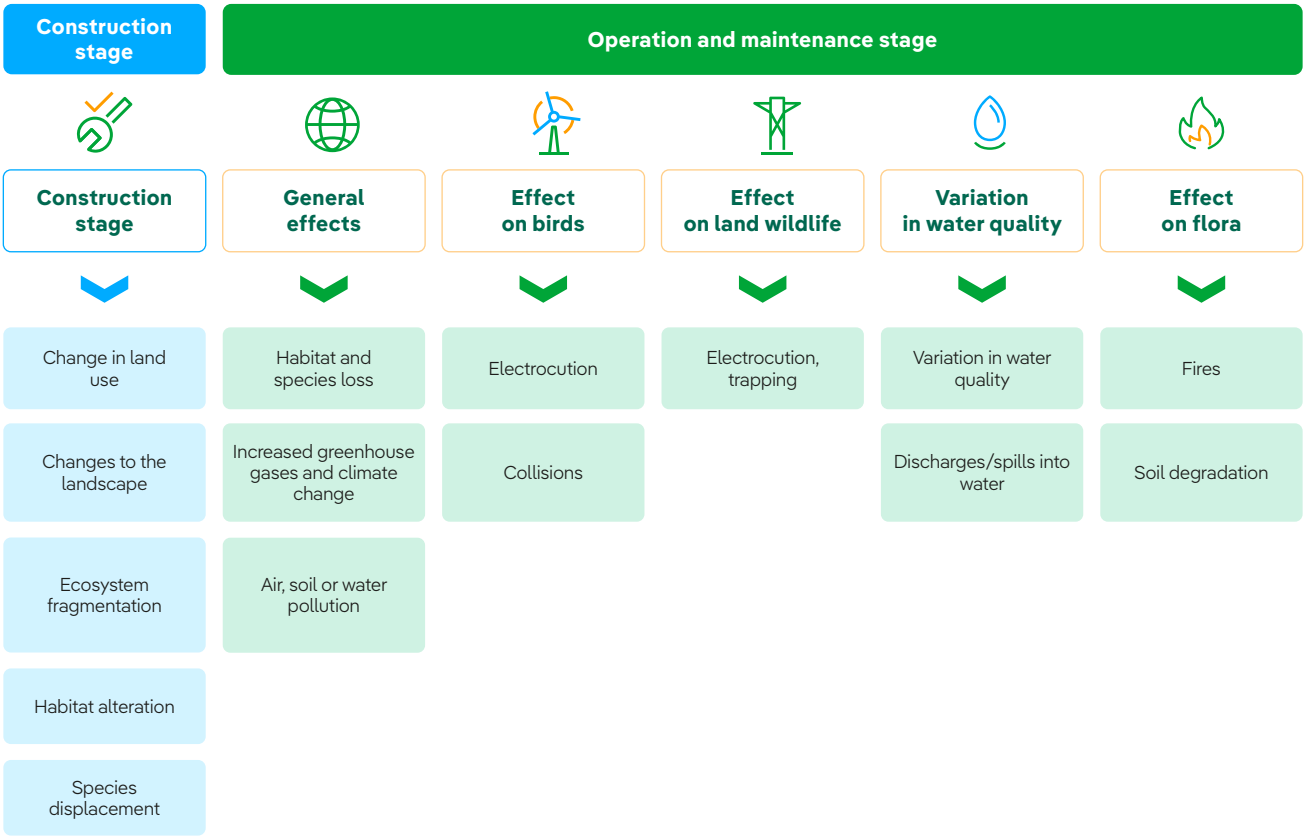
Identification of impacts

Activities and operations that may have impacts during the different phases of the life of facilities are identified in order to avoid, minimise and appropriately correct such potential impacts, as shown in the figure below:



Based on these actions, the potential significant impacts on biodiversity arising from the group's activities, products and services are in turn identified:

Potential impacts



Facilities in protected spaces or high biodiversity-value areas

The areas where Iberdrola operates provide habitats for a variety of wildlife, in some cases with some type of protection. This is primarily due to the fact that construction took place before such protection was granted by public authorities, as in the case of some hydroelectric power plants in Spain. There are also facilities for which – after an analysis of the alternatives, giving priority to avoiding protected areas, and after an environmental assessment process in which the mitigation hierarchy was applied – the competent authorities authorised the project. Such authorisation is based on the consideration that while the protected areas or high biodiversity-value areas could not be avoided, the preventive and palliative measures prevented the activities from having significant impacts on the protected habitats and species.

Therefore, following the impact assessment process, it was determined that the **presence of such facilities in protected spaces or in high biodiversity-value areas** was compatible with the protected elements, with the consequent implementation of **measures to prevent, mitigate and offset possible adverse effects**.

The following table shows the Iberdrola facilities within or adjacent to protected spaces or in high biodiversity-value areas:

Facilities within or adjacent to protected spaces (PS) or in high biodiversity-value (HBV) areas[15]				
Facility	**Surface area inside PS or HBV**	**Surface area inside PS**	**Adjacent facilities (units)**	**Type of protection**
Spain				
Hydroelectric plants - Reservoirs (ha)	50,871 ha	36,263 ha	5 units	Biosphere reserves, Ramsar Wetlands, Nature 2000 Network, National Parks, Natural Parks, Key Biodiversity Areas (KBAs), Nature Reserves, Micro-reserves, Areas of Regional Interest, Protected Landscapes and Natural Monuments.
Power lines (Km)	25,205 Km	10,825 km	N/A	Nature 2000 Network, Ramsar Wetlands, National Parks, Natural Parks, Biosphere Reserves and Key Biodiversity Areas (KBAs).
Substations (units)	269 units	116 units	N/A	Nature 2000 Network, Ramsar Wetlands, National Parks, Natural Parks and Biosphere Reserves, Areas of Regional Interest, Natural Monuments, Natural Reserve, Ecological Corridor, Protected Landscape, Regional Park and Key Biodiversity Areas (KBAs).
Transformer centres (units)	15,840 units	5,431 units	N/A	Nature 2000 Network, Ramsar Wetlands, National Parks, Natural Parks and Biosphere Reserves, Areas of Regional Interest, Ecological Corridor, Micro-reserve, Natural Reserve, Protected Landscape, Regional Park, Site of National Importance, Protected Areas of Mediterranean Importance, and Key Biodiversity Areas (KBAs).
Onshore wind farms (ha)	790 ha	245 ha	1 unit	Natura 2000 Network, Key Biodiversity Areas (KBAs), Natural Park, Micro-reserve.
Photovoltaic plants (ha)	3,543 ha	390 ha	0	Natura 2000 Network, Key Biodiversity Areas (KBAs), Natural Park.
Nuclear plants (ha)	142 ha	82 ha	3 units	Natura 2000 Network and Key Biodiversity Areas (KBAs).
Combined cycle and cogeneration (ha)	16 ha	0	8 units	Natura 2000 Network, Key Biodiversity Areas (KBAs), Natural Enclave, Protection Plan
United Kingdom				
Power lines (km)	4,758 km	4,398 km	N/A	National Park, Nature Park, Special Protected Area (SPA), Special Conservation Area (SCA), Ramsar Wetlands, National Nature Reserve (NNR), Sites of Special Scientific Interest (SSSI), Biosphere Reserves, Marine Protected Area (OSPAR), Regional Park, Nature Reserve, Area of Outstanding Natural Beauty (AONB), National Scenic Areas (NSA) and Key Biodiversity Areas (KBAs).
Substations (units)	549 units	512 units	N/A	National Park, National Scenic Area (NSA), Special Protected Area (SPA), Special Conservation Area (SCA), Ramsar Wetlands, National Nature Reserve (NNR), Sites of Special Scientific Interest (SSSI), Nature Reserve, Area of Outstanding Natural Beauty (AONB) and Key Biodiversity Areas (KBAs).
Transformer centres (units)	7,233 units	6,785 units	N/A	National Park, National Scenic Area (NSA), Special Protected Area (SPA), Special Conservation Area (SCA), Ramsar Wetlands, National Nature Reserve (NNR), Biosphere Reserve, Regional Park, Area of Outstanding Natural Beauty (AONB), Marine Protected Area (OSPAR), Sites of Special Scientific Interest (SSSI) and Key Biodiversity Areas (KBAs).
Offshore wind farms (ha)	292 ha	292 ha	0	Marine Protected Areas (OSPAR).
Wind farms (ha)	5 ha	0	1 units	Key Biodiversity Areas (KBA).
United States				
Onshore wind farms (ha)	108 ha	0	0	Key Biodiversity Areas (KBA).
Power lines (Km)	1,805 km	506 km	N/A	Marine Protected Area, National Wildlife Refuge, Wildlife Sanctuary, State Conservation Area, Bird Sanctuary, Nature Reserve, Forest Reserve, Wilderness Area (NPS), Wilderness Forest (USFS), National Scenic Trail, Wilderness Area and Key Biodiversity Areas (KBAs).
Substations (units)	15 units	2 units	N/A	Wilderness Forest (USFS), Wilderness Area and Key Biodiversity Areas (KBAs).
Transformer centres (units)	7,577 units	1,502 units	N/A	National Wildlife Refuge, State Park, Sanctuary, Marine Protected Area, Nature Reserve, Bird Sanctuary, Wildlife Sanctuary, Conservation Area, Forest Reserve, National Scenic Trail, Wilderness Forest (USFS) and Key Biodiversity Areas (KBA).

(15) En el 2023; Iberdrola ha revisado los criterios globales de reporte de este indicador y la fuente de datos ambientales utilizando ahora IBAT (World Database of Protected Areas y Key Biodiversity Areas)

Facilities within or adjacent to protected spaces (PS) or in high biodiversity-value (HBV) areas[15]				
Facility	**Surface area inside PS or HBV**	**Surface area inside PS**	**Adjacent facilities (units)**	**Type of protection**
Brasil				
Power lines (Km)	64,846 Km	52,199 Km	N/A	Environmental Protection Areas (EPAs), Wildlife Refuge, National Park, Key Biodiversity Areas (KBAs), Indigenous Reserve, Ecological Interest Area, Ramsar Wetlands, Natural Monument and Sustainable Development Reserve.
Substations (units)	234 units	149 units	N/A	Environmental Protection Areas (EPAs), Ecological Interest Area, Indigenous Reserve, Key Biodiversity Areas (KBAs) and Wildlife Refuge.
Transformer centres (units)	54,128 units	43,725 units	N/A	Environmental Protection Areas (EPAs), Ecological Interest Area, Indigenous Reserve, Wildlife Refuge, Natural Monument, Key Biodiversity Areas (KBAs), Sustainable Development Reserve and Ramsar Wetlands.
Hydroelectric plants (ha)	14 ha	0 ha	.-Nota [16]	Key Biodiversity Areas (KBA).
Wind Farms (ha)	6 ha	6 ha	0	Environmental Protection Areas (EPAs).
Combined cycles (ha)	1	0	0	Environmental Protection Area and a Key Biodiversity Area (KBAs).
Mexico				
Wind Farms (ha)	91 ha	0 ha	1 units	Key Biodiversity Areas (KBAs) and National Park.
Combined cycle and cogeneration (ha)	7 ha	0 ha		Key Biodiversity Areas (KBA).
Greece				
Wind and solar farms	50 ha	49 ha	0	Natura 2000 Network and Key Biodiversity Areas (KBAs).
Hungary				
Wind farms (ha)	9 ha	0.45 ha	0	Natura 2000 Network and Key Biodiversity Areas (KBAs).
Portugal				
Wind farms (ha)	17 ha	17 ha	0	Natura 2000 Network, Key Biodiversity Areas (KBAs), Natural Park and Protected Landscape.
Hydroelectric plants (ha)	200 ha	200 ha	0	Natura 2000 Network and Key Biodiversity Areas (KBAs).
Australia, Germany, Italy, Poland and Romania				
None				
Cyprus				
Onshore wind farm (ha)	0.63 ha	0.63 ha	0	Natura 2000 Network.
France				
Onshore wind farm (ha)	1.27 ha	0 ha	0	Key Biodiversity Areas (KBA).

(16) The Baixo Iguazú Hydroelectric Power Plant is located 500 m from the Iguaçu National Park.

Threatened species in the vicinity of the facilities

Awareness of the species that live in the vicinity of the facilities is fundamental to the prevention of effects on them - all the more so if they are protected.

Iberdrola keeps identified the threatened species included in the IUCN Red List and the national and regional lists of the areas where it operates that may potentially be affected by our facilities. In addition, it carries out monitoring programs and research projects on species in many of its facilities with the aim of better understanding their behavioral patterns and being able to incorporate this knowledge into operations. The following table lists those species which are likely to be impacted according to IUCN protection category.

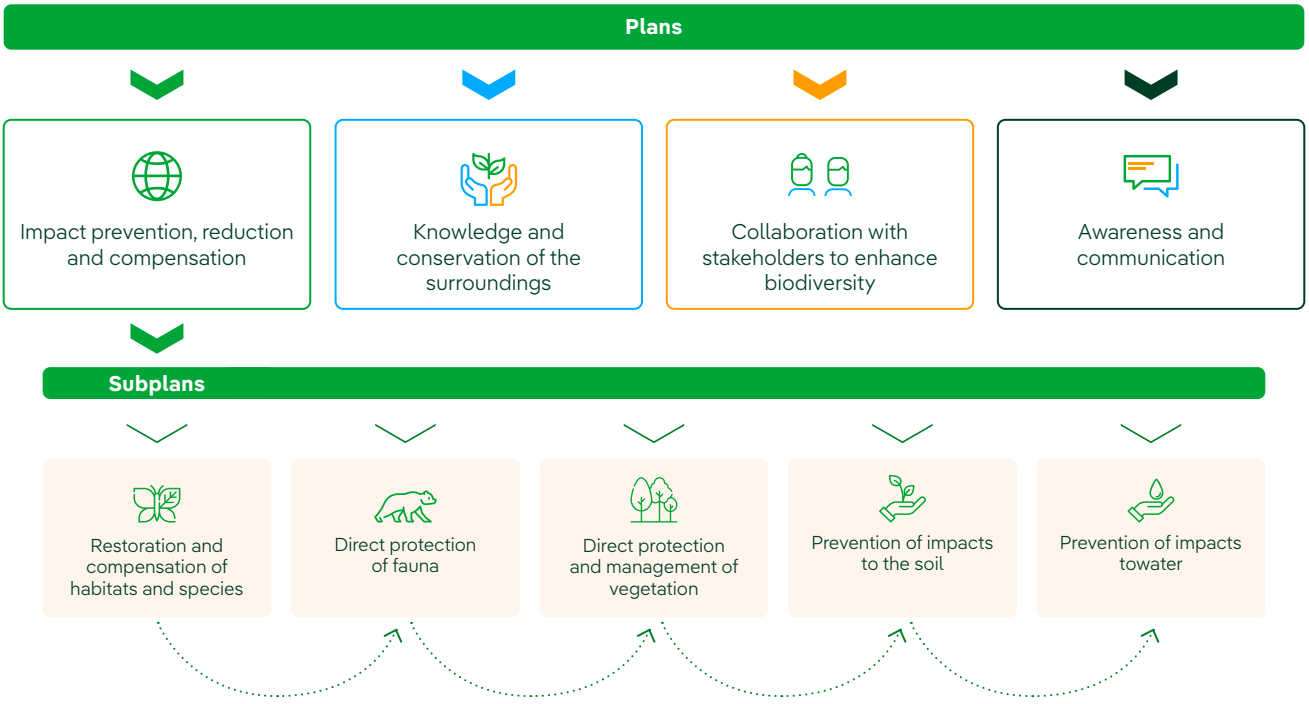
IUCN Red List Classification	
	No. of species
Critically endangered (CR)	22
Endangered (EN)	81
Vulnerable (VU)	172
Near threatened (NT)	188
Least concern (LC)	2,568

Action for biodiversity

In its *Biodiversity Policy*, Iberdrola establishes its priority lines for action, which are integrated in management of the operational units in action programmes and specific actions. These are:

- Protecting biodiversity and making sustainable use of natural capital, adopting a conservation hierarchy, integrating into its management the best practices along the entire lifecycle and promoting actions in favour of regenerating and conserving natural heritage.
- Continuously identifying, quantifying and evaluating the impacts and the dependencies of the group's activities on natural capital, with a focus on biodiversity during the entire lifecycle of facilities, by promoting research and improving knowledge of the ecosystems in the environments of the territories in which it operates.
- Partnering with Stakeholders, considering their needs and expectations regarding biodiversity in order to integrate these needs and expectations in action plans, and participating in research projects.
- Commitment to raising awareness and reporting on the importance of biodiversity and internally and externally communicate the impact of our activities and actions for the preservation of biodiversity.

Biodiversity Action Plan



Iberdrola engages in more than 800 activities for the protection of biodiversity each year and publishes its Biodiversity report on a regular basis, which includes many of these activities.

Tackling the drivers of biodiversity loss

The analysis of the impact of the group's activities on these drivers enables Iberdrola to take the measures required to prevent or minimise them. The drivers of biodiversity loss identified by the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) that can be tackled by Iberdrola are analysed below, as are the measures taken to prevent and minimise the impact of its activities.

Changes in land use

In a context of increased energy demand and transition to a low-carbon economy, new clean energy facilities need to be built, which must be environmentally friendly. This infrastructure often causes changes in land use and potential habitat loss, displacing species.

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

The Plan also reinforces the work done by the company to implement the mitigation hierarchy (avoid, reduce, mitigate, and compensate as a last option) in all project phases, from the design and Environmental Impact Assessment (EIA) processes to decommissioning after operation.

Most impacts resulting in diversity loss can be prevented in the design phase, for which reason we support knowledge of the area as the best tool to prevent or minimise effects on the environment. To properly select a site, Iberdrola avoids locating new infrastructures in protected areas (including World Heritage sites, national protected areas, Nature 2000 Network, and the respective International Union for the Conservation of Nature (UICN) categories, as well as unprotected areas of high biodiversity value, unless there are no alternatives or the only alternatives are less compatible with the environment. If significant impacts are identified during the evaluation process, the project is modified to the extent possible, and the best available techniques and any measures identified as necessary are employed to correct and minimise these impacts. Stakeholders are involved and consulted with throughout the entire design process, which makes it possible to incorporate good construction practices, going beyond the applicable legal requirements in each case. Once this process has ended, and during construction, Iberdrola continues to work with stakeholders, seeking to ensure that the environmental impact is as low as possible, restoring the affected areas and offsetting residual impact.

Iberdrola works to ensure that new infrastructure projects are a shelter for biodiversity while preserving local jobs. One example is photovoltaic plants in Spain, which have gone from being agricultural land to becoming biodiversity reservoirs thanks to the measures taken.

Habitat and species loss

A proper habitat is essential for ensuring the successful survival of local species, for which reason Iberdrola implements specific programmes and actions to avoid, reduce, restore and offset effects on habitats and species at its infrastructure, as well as to monitor their interactions in order to remedy the impacts. It also promotes voluntary projects that contribute to reversing the loss of biodiversity in ecosystems. Below is a list of the most important projects in 2023, for more information see Iberdrola's Biodiversity report.

Habitat conservation, restoration and compensation programmes

Iberdrola is committed to preserving and restoring forest ecosystems. For this reason, in 2020 it created the Trees Programme for forest biodiversity and ecosystems in order to promote the conservation and planting of 20 million trees by 2030. Since its launch, the group has promoted the planting of 3.4 million trees.

In 2023, Iberdrola launched Carbon2Nature (C2N) with the mission of developing high-impact nature-based solutions projects that reduce the overall carbon footprint, improve biodiversity and promote a sustainable economy. The new company aims to capture and store in nature more than 61 million tonnes of CO_2, which it will make available to its customers in the form of carbon credits. In 2023 alone, C2N promoted the planting of more than 770,000 trees as part of conservation and ecosystem restoration projects covering more than 640 hectares in Spain.

Also noteworthy is the work carried out in Brazil in recent years, where conservation and regeneration activities have been carried out on more than 8,975 hectares and monitoring and conservation actions on more than 18,400 hectares in Permanent Preservation Areas. Activities in 2023 include a continuation of the creation of the Biodiversity Corridor through the forest areas of Iguaçu National Park (PNI) and the Direct Influence Areas (AID) of the Lower Iguaçu Hydroelectric Plant, in the areas surrounding the reservoir. Conservation activities have been carried out on 1,135 hectares and more than 110,000 trees have been planted to date. The corridor will consist of more than 3,000 hectares. In addition, work has continued on developing the Permanent Protection Areas of Corumbá and Telespires, where the planting of more than 50,000 trees was promoted in 2023. A total of 54,800 trees were also planted on 56.6 hectares in the Luzia Solar Complex. Neoenergia Networks carried out forest restoration actions in 2023 in which approximately 7,200 trees of native species were planted in São Paulo and Pernambuco, respectively.

In the United Kingdom, work was undertaken in 2023 to maintain and replace plant species as part of the restoration work on the land taken up by the landline cable at the East Anglia One offshore wind farm, where more than 1,600 trees were planted, 35 hectares of grassland were sown, and 3,500 linear metres of hedges were recovered.

In Greece, more than 10,000 trees have been planted on almost 5 hectares and more than 2 hectares of land have been sown and reforested as part of the measures to offset the installation of an onshore wind farm.

In Mexico, maintenance continued on more than 25 hectares planted in 2019 at the La Venta III wind farm and the 38 hectares at the Escobedo combined cycle power plant (Northeast), where to date more than 23,500 trees have been planted at this last site.

At the Tâmega hydroelectric complex (Portugal), reforestation and maintenance of planted land continues, with more than 41,700 new trees planted in 2023.

Various reforestation projects have been implemented as part of the volunteer programmes promoted in all countries. Thanks to these initiatives, more than 6,000 trees have been planted in Spain, more than 1,500 in Brazil and almost 8,000 in Mexico. In the United Kingdom, the Trees For Life project continues, where 400 trees have been planted this year in the groves owned by ScottishPower.

Other restoration actions

Iberdrola also promotes the restoration of other ecosystems. In 2023, work continued on the Habitats Management and Monitoring Plan with respect to the wind farms in Scotland, covering a total area of more than 10,000 hectares.

Iberdrola also works to ensure that new infrastructure projects are a shelter for biodiversity while preserving local jobs. This is exemplified by the photovoltaic plants in Spain, including the creation of a genetic plant reserve for the conservation of orchids and other unique species at the Núñez e Balboa photovoltaic plant and the restoration of

the habitat for the recovery of the Cabrera vole at the Oriol photovoltaic plant. There are also regular measures to encourage the settlement of species such as the lesser kestrel, vegetation management through sheep, and the promotion of ecosystemic services and local jobs, such as the placement of beehives at several of the photovoltaic plants during certain months of the year.

Fauna and flora species protection and conservation programmes

Iberdrola is working to minimise the impacts of its facilities on fauna and is taking actions to promote its protection and conservation. Special attention has been paid to the effects of our wind farms and grids on fauna, particularly birdlife. Numerous actions have been taken in this regard, from adapting supports –more than 140,000 in Spain since 2018– to implementing new bird protection methodologies, such as the installation of AI-equipped surveillance cameras or deterrents such as painting blades, installing eye-shaped vinyl patterns, among others. Conservation measures include the reintroduction of eight Spanish imperial eagle chicks. Other common measures include the construction of middens, dens, pigeon coops, ponds and burrows and installing nesting boxes for birds and bats, all of which are designed to provide shelter and food for different species in the vicinity of Iberdrola's facilities. It is also common for photovoltaic plants to manage agricultural land to favour the presence of steppe birds, through land stewardship agreements.

In Brazil, a Conservation Programme has been set up with the main objective of recovering the endangered Lear's Macaw, a species endemic to the Caatinga.

In France, the operation of wind farms depends on agricultural activities and the weather. Therefore, wind turbines do not operate during activities or weather conditions that are favourable to the presence of red kites and other rare species.

ScottishPower has collaborated with World Wildlife FUND (WWF) in the Restoration Forth project, which has successfully reintroduced 10,000 native oysters into the Firth of Forth (Scotland), their natural habitat but where they have been absent for the last 100 years.

In the implementation of new projects, there are numerous activities to conserve and improve the habitats of threatened or unique species. In France, birds were protected through actions to fight the depredation of sea birds by carrion crows in Cap Fréhel at the Saint-Brieuc offshore wind farm. Measures to protect sea life, particularly sea mammals and sea turtles, are implemented at offshore wind farms in the United States. The actions are aimed at protecting species such as the hawksbill sea turtle (*Eretmochelys imbricata*), North Atlantic right whale (*Eubalaena glacialis*) and Kemp's ridley sea turtle (*Lepidochelys kempii*).

Wildlife tracking and monitoring programmes

Iberdrola carries out programmes to track threatened species or habitats that may be affected by its activities, in order to evaluate the success of its corrective measures, identify possible impacts and implement new measures to reduce such impacts where necessary. In addition to the tracking of birdlife and chiroptera at the group's wind farms, measures are underway to monitor fish and water bodies so as to protect the water environment in Spain, in addition to monitoring programmes with respect to herpetofauna, ichthyofauna and mastofauna at the hydro plants in Brazil, monitoring of feline species at the combined cycle plant in Altamira and benthic and marine mammal monitoring at offshore wind farms.

Vegetation management programmes

Iberdrola applies the best techniques to minimise effects in the form of soil loss due to erosion and acidification. These techniques include maintaining the vegetation cover at photovoltaic plants and refraining from using herbicides as well as avoiding the mass cutting of trees for street cleaning work related to fire protection lanes.

Programmes to foster knowledge and research for habitat and species conservation

Iberdrola is committed to supporting knowledge and research as key measures to protect and conserve biodiversity. Along these lines, in 2023 the company continued to support research such as the work carried out through the Coralizar Project on the effects of climate change on coral reefs and the Flyways Project to monitor wading and migratory birds, some of which are at risk of extinction, in northeastern and southern Brazil.

In Spain, studies on the evolution of biodiversity were carried out at several photovoltaic plants, the accounting framework for diversity was developed to monitor the group's Biodiversity Plan 2030, and work was done on the assessment of the natural capital at several facilities. The Migra Project also continued, the objective of which is to study the migratory

movements of birds in Spain, with the launch of a project with the Migres foundation to analyse actions for the recovery of ospreys in Spain. Work is also under way to conserve habitats and species, such as the protection of feline species and mangroves in Mexico.

A specific programme on macrophyte growth dynamics is being carried out at the Itapebi reservoir in Brazil and DNA samples from restored peatlands are being analysed at the Whitelee onshore wind farm in Scotland. A survey is also being conducted to determine whooper swan migratory routes between Iceland and northwest England, aimed at determining the altitude and speed of these routes.

Iberdrola and BirdLife have signed a partnership to collaborate on renewable deployments that enhance the contribution to biodiversity.

Iberdrola also played an active role in the European Business and Biodiversity Summit and the nature-related events of Climate Week in New York, and sponsored the Conference on Wind Energy and Wildlife Impacts in Croatia.

Climate change

All information on Climate Action can be found in chapter Climate action.

Pollution

Eutrophication and eco-toxicity are problems derived from pollution. Iberdrola applies the precautionary principle and its environmental guidelines include preventing water and soil pollution through spillage or dumping.

To this end, pollution prevention programmes have been implemented within all organisations of the group, through actions to improve the safety and containment measures to prevent harm. These planned actions include building tanks to collect oil in the event of a mass spillage at substations and transformation centres, the insulation of retaining troughs, and the installation of containment barriers in sensitive environments.

Invasive species

Invasive species are animals, plants, or other organisms that develop outside their natural area of distribution, in habitats that are not their own or in an unusual abundance, causing alterations in ecosystem richness and diversity.

Control of these species is fundamental for the equilibrium of ecosystems. Iberdrola contributes to reducing these species both in the operation of its facilities (vegetation management and zebra mussel control programmes) and through dedicated volunteering actions.

Sustainable use of resources and the circular economy

For Iberdrola, the circular economy is a key element to achieve sustainable development and represents an opportunity as a driver for climate action and the energy transition.

Iberdrola Circular Economy

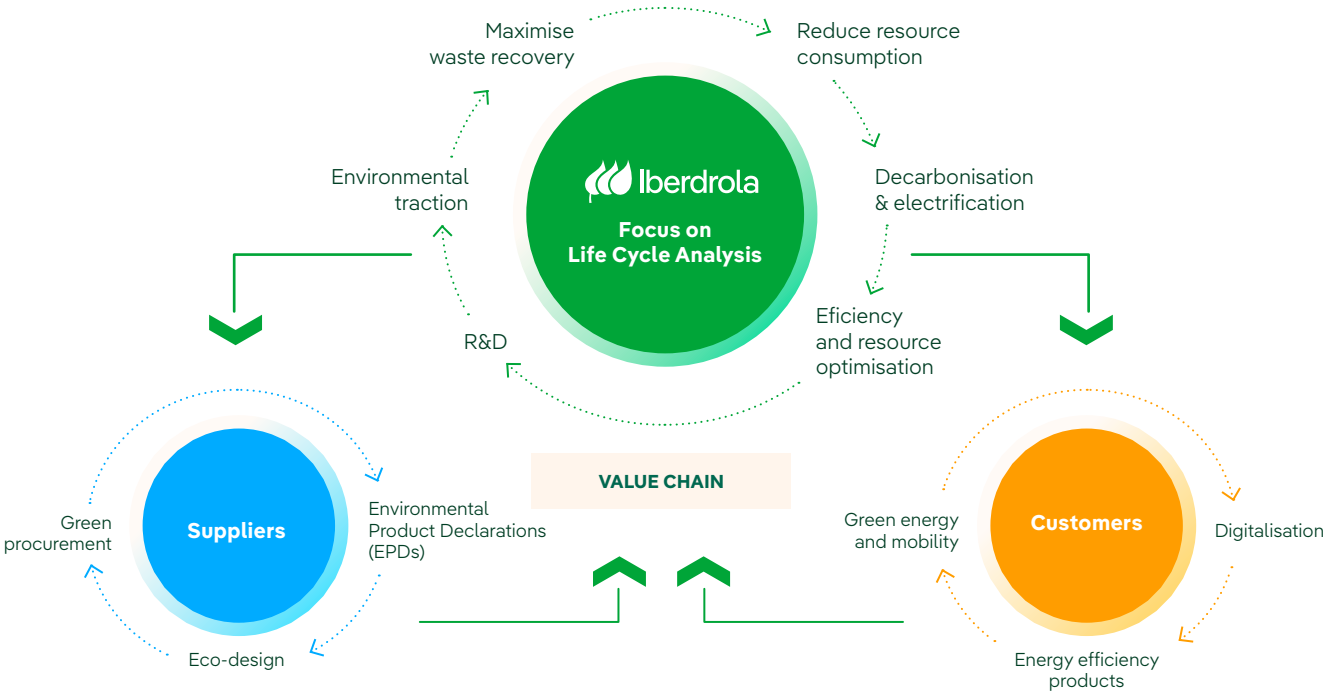
The circular economy encompasses a wide spectrum of the company's activities, relating not only to Iberdrola's internal processes, but also to the activities carried out by our suppliers and the products and services we provide to our customers.

The circular economy is based on the following pillars:

- Use of renewable resources in production.
- Improving efficiency in processes and services; including extending the life cycle and repairing and reusing assets.
- Maximising the use of waste.

Iberdrola's circular economy management model therefore identifies three areas of action to assess performance and define actions.

- Internally within the company, to improve processes in pursuit of efficiency in using resources and energy, backed by R&D to develop products and services with a smaller environmental footprint.
- An area for working with suppliers to improve the supply chain and to deliver products and services to Iberdrola with higher rates of secondary raw materials, lower energy consumption and better reuse and recycling rates.
- An area for our customers, providing better products and driving the energy transition associated with less use of resources.



Iberdrola has defined the following challenges for 2030:

- Reducing the consumption of primary materials for electricity generation by 50% compared to 2020.
- 100% of the company's light fleet sustainable
- 100% recycling of blades and photovoltaic panels (50% in 2025)
- 10% of our steel will be near-zero as part of our commitment to the **First Movers Coalition** of the World Economic Forum.
- 50% sustainable steel by 2030 and 100% by 2050 as part of The Climate Group's **SteelZero** initiative.

Furthermore, Iberdrola continues to work with its suppliers to improve working standards through its supplier evaluation system and the support and training it offers them to adopt best practices in the circular economy.

We continue promoting products for our customers based on an electrified and decarbonised economy in mobility and green heat. In addition, we are actively working on decarbonising complex hard-to-abate industries, which will deliver significant circularity improvements.

Actions to be highlighted during 2023 are:

EnergyLoop	EnergyLoop is a company created by Iberdrola together with FCC to provide a commercial and scalable solution to recycling wind turbine blades.
	Construction of its plant in Navarra (Spain) began in 2023. EnergyLoop will play a key role in ensuring blade recycling.
LATEM Aluminio	Iberdrola invests in LATEM to develop a recycled and low-emission aluminium production facility.
ChargingTogether	ChargingTogether is a company that was set up together with BP and that will install 11,700 charging points by 2030.
Aliances	Iberdrola continues to foster and support alliances working towards decarbonisation in major economic sectors, including Spain's AEDIVE and NetZero Mar aimed at promoting the electrification of heavy road transport and decarbonising maritime transport, especially in port operations.
I+D	Iberdrola participates in the European RETRIEVE project to research solar panel recycling processes that provide higher value products.

All of these actions are framed within Iberdrola's Circular Economy Plan, which sets out the global goals and guidelines to be implemented locally by each of the country subholding companies.

Use of materials

The consumption of fuel from non-renewable sources for generation over the last three years is shown below. Consumption of renewable fuels used in generation (WDF and Offgas) is also included:

Use of raw materials			
	2023	**2022**	**2021**
Coal (t)	0	0	–
Fuel oil (t)	5,708	17,362	26,327
Natural gas (Nm^3)	13,513,252,939	13,066,040,385	13,719,683,127
Diesel (m^3)	31,985	38,767[17]	23,649
Uranium (kg)	36,907	52,238	34,899
Waste-derived fuel (WDF) (t)	1,553	1,037	2,258
Offgas (m^3)[18]	32,649,159	44,930,387	69,875,382

The use of waste-derived fuel (WDF) and Offgas from industrial processes accounted for 0.10% of the fuel energy consumed in the year.

(17) The updated figure for 2022 is presented, based on a better available value, which differs from the one presented in the SNFI-SR 2022. This value is immaterial to the total value of internal energy consumption (GJ) reported in the GRI 302-1 table.

(18) Offgas is a fuel produced at the plants of the Tarragona Power S.L. customers. The volume of gas consumed by the plant depends on the customers' activity.

Fuel use (%) by country in 2023 is shown below:

Distribution of fuel consumption in 2023 (%)							
	Carbón	Fuel	Gas Natural	Gasóleo	Uranio	CDR	Offgas
Spain	0	100	12.5	45.1	100	100	100
United Kingdom	0	0	0	3	0	0	0
United States	0	0	5	11.0	0	0	0
Brazil	0	0	0.1	27.1	0	0	0
Mexico	0	0	82.1	1.5	0	0	0
Other countries	0	0	0.1	12.1	0	0	0

Apart from fuel, there is also consumption – to a much lower extent – of chemical products (in water purification, filtering of gases, etc.), oil and grease, etc.

Rational use of water[19]

Water is a basic and irreplaceable natural resource in many of Iberdrola's activities, mainly for producing hydroelectric power where water energy is transformed into electricity and this same water is returned to the environment, and in thermal power plants which rely on water supply as a coolant. The company's awareness of this dependency and of the risks arising from water shortages has led it to set a goal of ensuring its increasingly responsible use of this resource.

The group's main actions for a more sustainable use of water are:

- Continually improving processes at facilities to reduce consumption and impact.
- Implementing and controlling ecological flows and environmental programmes as required by the competent authorities at hydroelectric generation facilities.
- Conducting awareness-raising campaigns to achieve a more efficient and responsible use of sanitary water by employees at offices.

The water cycle needed to generate power at Iberdrola's thermal generation plants is based on the following three phases:

- **Withdrawal:** performed within regulatory limits.
- **Use:** use in cooling and auxiliary services of plants.
- **Return to the environment:** the quality of effluent discharged into the environment is always within the required limits and even improving on them compared to the values of water withdrawn.

Efforts to ensure compliance with legislation and to seek methods for minimising the risk of spills apply to all of Iberdrola's facilities, including thermal, hydroelectric, wind, and photovoltaic generation plants and distribution substations.

To avoid the risk of polluting discharges, with a possible negative impact, Iberdrola has:

- Consolidated Environmental Management Systems: ISO 14001 and EMAS certificates, in which possible anomalies and incidents are managed, establishing plans to minimise spillage risks, by implementing predictive, preventive and corrective actions that ensure the proper condition of the water.

Water consumption and discharges by the facilities in 2023 remained within the limits established in the environmental operating conditions and monitoring programmes, and no anomalies were detected that might materially affect water resources or associated habitats.

The following table gives total water consumption, considered to be the difference between total water withdrawn and water discharged, with a breakdown of total water withdrawal by the group by source and water stress area. The areas are classified according to the *Aqueduct Water Risk Atlas*.

(19) Following an internal audit conducted in 2023, a material error was detected in the calculation of the water consumed by the Baja California combined cycle power plant in Mexico. The water consumption was much higher than the actual water consumption due to the data provided by a faulty water discharge sensor. The affected figures in indicators 303-4 and 303-5 have been updated for 2022.

Extracción, vertido y consumo de agua						
	2023		2022		2021	
	All areas	Water stress areas	All areas	Water stress areas	All areas	Water stress areas
Withdrawal by water source						
Surface water (river, lake, reservoir or wetland)						
Fresh water	522,595	415,789	511,598	383,700	507,545	374,451
Other water	0	0	0	0	0	0
Seawater						
Fresh water	0	0	0	0	0	0
Other water	1,196,465	759,521	1,181,697	344,873	1,338,177	338,327
Groundwater						
Fresh water	2,647	2,451	2,333	2,008	2,787	2,480
Other water	0	0	0	0	0	0
Third-party water						
Fresh water	23,656	9,387	23,424	9,867	25,892	3,286
Other water	0	0	0	0	0	0
Total water withdrawal						
Fresh water	548,898	427,627	537,355	395,575	536,224	380,217
Other water	1,196,465	759,521	1,181,697	344,873	1,338,177	338,327
Total	**1,745,363**	**1,187,148**	**1,719,052**	**740,449**	**1,874,401**	**718,544**
Water discharge by destination (ML)						
Total	**1,665,559**	**1,130,324**	**1,642,422**	**673,092**	**1,787,111**	**648,383**
Total water consumption (ML)						
Total	**79,804**	**56,824**	**76,629**	**67,357**	**87,289**	**70,161**
Total Consumption/Withdrawal (%)	**4.6%**	**4.8%**	**4.5%**	**9.1%**	**4.7%**	**9.8%**

71% of Iberdrola's thermal plants are located in areas of high water stress, according to the water stress indicator of the Aqueduct Water Risk Atlas. 69% of the water withdrawn is seawater or saltwater that does not affect water stress.

Total water withdrawal is the sum of the various sources, and is obtained by direct measurement (flowmeters) or by estimating the output of the water withdrawal pumps.

99% of total water withdrawn is used in cooling processes. The rest of the water withdrawn corresponds to other ancillary services of the generation plants.

All of the withdrawals of water intended for use in generation are regulated strictly by government authorities, which issue the permits and determine the maximum permissible withdrawal volumes, to avoid significant negative effects.

68% of the water withdrawn and 79% of the water consumed is from high and very high water stress areas.

The changes in the group's water use are summarized in the following table:

Water use			
	2023	2022[20]	2021
Total water consumption (ML)	79,804	76,629	87,289
Water use/overall production (m^3/GWh)	473	470	588
Water use/overall sales (m^3/thousands of euros)	1.62	1.42	2.16

(20) As a result of an internal audit carried out during 2023, a material error was detected in the calculation of the water consumed by the Baja California combined cycle in Mexico. Water consumption was much higher than actual due to the information provided by the incorrectly functioning spilled water sensor. The values affected in indicators 303-4 and 303-5 are updated for the year 2022.

Water cycle in hydroelectric generation

Water used for hydroelectric power generation is not considered to have been withdrawn, and is therefore analysed separately. The following table shows the net amount of water used in hydroelectric power generation, defined as turbined water less pumped water, in Spain, Brazil and the United States, and the change in storage of reservoir water:

Water use in hydroelectric generation (ML)			
	2023	2022	2021
Net water volume	159,584,653	137,187,988	158,007,994
Volume of pumped water	4,890,933	4,665,145	3,058,700
Increase in reservoir water	360,900	2,250,390	-1,378,705

For more information, see the Water usage section of the corporate website.

Finally, a binding agreement was signed as a result of the sale of Iberdrola Mexico and Mexico Infrastructure Partners (MIP), whereby MIP acquires a total of 8,539 MW, of which 99% correspond to combined cycle gas plants, the vast majority (87%) of which are plants operating under the Independent Power Producer regime, contracted with the CFE.

As a result, the impact of this transaction on the evolution of water consumption was estimated at a reduction of 29% to 56,500 ML.

Number of water-related incidents			
	2023	2022	2021
Total	**0**	**3**	**N/D**

Water discharge

After use in cooling and other auxiliary processes, 93% of the water withdrawn at thermal generation and cogeneration facilities returns to the environment.

The total discharge of water by destination type is:

Water discharge by destination (ML)			
	2023	2022	2021
Sea	1,170,696	1,160,115	1,309,168
Rivers	119,540	139,346	144,957
Lakes and reservoirs	371,838	339,168	329,070
Purification network	3,485	3,793	3,916
Total	**1,665,559**	**1,642,422**	**1,787,111**

Discharge of water in fresh water or other waters is:

Total discharge by water type (ML)			
	2023	2022	2021
Fresh water	494,864	482,307	477,943
Other water	1,170,695	1,160,115	1,309,168

Discharged water that returns to the receptor environment does so in physicochemical conditions allowing it to be used by other users without affecting the natural environment. The discharge by treatment level is:

Water treatment (ML)			
	2023	2022	2021
No treatment	91,876	88,295	293,418
Primary treatment	335,813	260,215	292,952
Secondary treatment	1,097,244	1,271,869	1,191,114
Tertiary treatment	140,626	22,043	9,627

Efficiency in energy consumption

The Iberdrola group optimises the use of energy throughout its value chain (production, transmission, distribution, marketing and end use), considering energy efficiency from a threefold perspective:

- As a company that generates and distributes electricity, it seeks to improve efficiency by introducing cutting-edge technologies, new equipment and digitalisation, which means expanding electricity grids and growing selectively in renewables, thus promoting a safe, clean and competitive system.
- As an energy consumer, Iberdrola promotes the ongoing improvement of energy efficiency across all its activities (offices and buildings, mobility, etc.).
- As a supplier of energy solutions, the company informs, promotes and supplies comprehensive efficiency solutions aligned with the emission reduction strategy, thereby contributing to more efficient energy use by consumers, while encouraging the reduction of the environmental impact of their energy consumption habits.

Energy consumption within the organisation

Energy consumption within the organisation (internal consumption) includes energy consumption at all Iberdrola group facilities, buildings and offices, and is calculated as:

Energy consumption within the organisation (GJ) = *Fuel consumption* + Energy purchased - (Non-renewable) energy sold - Steam Sold

The fuel consumption figure in terms of energy (GJ) is obtained by directly measuring the fuel used at each facility based on its lower heating value (LHV):

$$Consumption\ (GJ) = Fuel\ consumption\ (kg) \times PCI\ \left(\frac{Mj}{kg}\right) / 1000$$

The value of energy purchased or sold is obtained by direct measurement at the facilities, buildings and offices:.

$$Consumption\ (GJ) = \sum Building\ /\ facility\ consumption\ (MWh) \times 3.6\ GJ\ /\ MWh$$

Energy consumption within the organisation in recent years is shown in the following table:

Energy consumption within the organisation (GJ)			
	2023	**2022**	**2021**
Energy consumption by type of fuel			
Natural gas	491,688,521	483,640,179	510,013,958
Uranium	268,875,553	266,435,615	258,565,631
Coal	0	0	–
Fuel oil	230,599	701,425	1,064,873
Diesel	2,401,448	3,349,275	1,482,414
WDF	50,800	33920	73,880
Offgas	724,362	1,068,132	1,469,003
Petrol	377,970	678,733	622,030
Ethanol	122,583	129,812	119,505
Propane	8,715	7,533	N/D
CTV Diesel	123,117	159,866	N/D
HVO	12,546	3,768	N/D
CNG	595	147	N/D
Fuel consumption	**764,616,214**	**756,208,405**	**773,411,294**
Energy purchased	**26,941,184**	**17,981,640**	**11,815,428** [21]
Standby and pumping	26,207,894	17,433,811	11,326,651
Buildings[22]	733,290	547,829	488,777
Non-renewable energy sold	**320,669,243**	**317,481,891**	**322,340,336**
Steam sold	**9,651,522**	**10,763,904**	**14,093,106**
Total energy consumption within the organisation	**461,237,228**	**445,944,250**	**448,793,280**

The following table shows the losses in distribution and transmission networks:

Transmission and distribution network losses (%)			
	2023	**2022**	**2021**
Transmission			
United Kingdom	2.35	1.75	1.90
United States	1.28	1.38	1.60
Brasil [23]	1.74	N/D	N/D
Distribution			
Spain	6.30	6.29	6.42
United Kingdom	7.22	7.32	7.24
United States	3.34	4.06	3.92
Brazil	8.54	8.51 [24]	12.82

Annual loss reduction programmes are undertaken in all regions to reduce the level of losses and thus limit the costs borne by the system.

(21) Data updated due to improved calculation in the report for this year.

(22) During 2023, electricity consumption in buildings was 203,692 MWh

(23) Although there are transmission assets in the country, the data for 2021 have not been collected for this report.

(24) Neoenergia's network losses for 2021 have taken into account the technical and non-technical losses, while in 2022 and 2023 they only take into account technical losses, for purposes of uniformity with the other countries.

Efficiency in thermal generation

In line with previous years, the company continues to implement measures to improve plant efficiency by preventing leaks, reducing emissions, reducing auxiliary consumption, optimising start-up times and procedures, and installing recirculation systems, among others.

The following table shows changes in the average efficiency of thermal generation facilities:

Average efficiency at thermal generation facilities (%)			
	2023	2022	2021
Spain			
Combined cycle	50.72	50.99	51.05
Conventional thermal	0.00	0.00	0.00
Cogeneration	69.76	69.01	71.37
United Kingdom			
Combined cycle	N/A	N/A	N/A
Conventional thermal	N/A	N/A	N/A
Cogeneration	N/A	N/A	N/A
United States			
Combined cycle	N/A	N/A	N/A
Conventional thermal	N/A	N/A	N/A
Cogeneration	48.55	48.07	46.87
Brazil			
Combined cycle	51.18	42.11	54.74
Conventional thermal	N/A	N/A	N/A
Cogeneration	N/A	N/A	N/A
Mexico			
Combined cycle	52.07	53.05	53.81
Conventional thermal	N/A	N/A	N/A
Cogeneration	55.54	58.13	59.79
IEI			
Combined cycle	N/D	N/D	N/D
Conventional thermal	N/A	N/A	N/A
Cogeneration	N/D	N/D	N/D
Total			
Combined cycle	**51.92**	**52.80**	**53.41**
Conventional thermal	**0.00**	**0.00**	**0.00**
Cogeneration	**56.26**	**57.91**	**56.89**

Reduction of energy consumption

Two cornerstones of reduced energy consumption are considered: on the one hand, the energy savings from reduced fuel consumption and, on the other hand, the savings associated with steps to improve energy efficiency.

Reduction of energy consumption through the generation of renewable energy and steam (energy saved, GJ)				
Areas	**Type of energy**	**2023**	**2022**	**2019**
Renewables	Annual primary energy savings through the production of renewable energy	280,086,056	265,931,274	270,277,248
Cogeneration	Annual savings through the supply of heat energy (steam) within the group	9,651,522[25]	10,763,904	14,093,106
Total		**289,737,578**	**276,695,178**	**284,370,354**

The reduction in energy consumption is equal to the savings of primary (non-renewable) energy generated by the production of renewable energy and cogeneration. This figure for the energy saved is obtained by direct measurement at the output terminals of the facilities.

$$\textit{Consumption (GJ)} = \sum \textit{Generation (MWh)} \times \textit{3.6 GJ / MWh}$$

Various measures were implemented in 2023 to improve energy efficiency in buildings and infrastructure. The energy savings resulting from these measures is presented below:

Reduction of energy consumption associated with increases in efficiency (energy saved, GJ)				
Areas	**Item**	**2023**	**2022**	**2021**
Efficiency in the distribution network	Savings due to efficiency in the grid	1,472,450	1,379,273	1,522,071
Efficiency in generation	Savings due to efficiency improvement at plants	36,928[26]	7,656	1,654
Efficiency in buildings	Savings due to efficiency in buildings	7,362	6,239	5,370
Total		**1,516,740**	**1,393,168**	**1,529,095**

Reductions in energy requirements of products and services

Iberdrola offers its customers smart and innovative residential and industrial solutions to promote efficiency, energy savings and care for the environment.

Energy savings from green products and services						
	2023		**2022**		**2021**	
	GJ	**MWh**	**GJ**	**MWh**	**GJ**	**MWh**
Photovoltaic solar energy	1,953,060	542,517	672,095	186,693	208,886	58,024
Energy audits and plans	1,079,399	299,833	1,188,267	330,074	0	0
Gas maintenance service	0	0	0	0	0	0
Other savings and efficiency activities	266,711	74,086	558,968	155,269	371,899	103,305
Green energy supplied	270,016,638	75,004,622	243,281,238	67,578,122	265,553,475	73,764,854
Total	**273,315,808**	**75,921,058**	**245,700,568**	**68,250,158**	**266,134,260**	**73,926,183**

(25) Lower energy demand from the companies associated with the cogenerations.
(26) The increase is due to the installation of solar panels for self-consumption at the generation plants.

Energy consumption outside of the organisation

The most significant consumption of energy outside the organisation is associated with trips to/from work by the group's employees and with business travel (flights and motorways). All of this information forms part of Scope 3 in the calculation of greenhouse gas emissions. Energy consumption outside the organisation is estimated based on the distance travelled via each means of transport and is transformed using the conversion factors obtained from official sources. Energy consumption for these items was in the order of 658,997 GJ in 2023, which is a reduction compared to the 2022 data, mainly due to the increased use of hybrid and electric cars.

Energy intensity

The fuel consumption intensity of thermal power plants relative to their net production in 2023 was 179 toe/GWh, while the intensity of internal energy consumption was 2.74 GJ/MWh.

Fossil fuel consumption (toe/GWh)			
	2023	2022	2021
Total	179	180	216

Internal energy usage intensity (GJ/GWh)			
	2023	2022	2021
Total	2.74	2.71	2.70

Generation technologies (% energy production)			
	2023	2022	2021
Renewables	47 %	46 %	45 %
Onshore wind	26 %	28 %	25 %
Offshore wind	3 %	3 %	3 %
Hydroelectric	15 %	13 %	15 %
Photovoltaic solar and others	3 %	2 %	2 %
Nuclear	14 %	15 %	14 %
Combined cycle	35 %	36 %	36 %
Cogeneration	4 %	4 %	4 %
Coal	— %	— %	— %

Renewable energy production continues its upward trend, with a slight increase in hydropower production.

Savings due to efficiency measures of the electrical network

Energy savings due to efficiency in the network are derived from the actions that the company implements to control or reduce losses, among which the following stand out:

- Update and reform of distribution and transportation networks and substations.
- Digitalization of networks.

Building efficiency

Iberdrola continues to implement energy efficiency measures in the company's buildings and offices around the world. In 2023, the supply of energy from renewable sources in the buildings and offices of Iberdrola España and ScottishPower is 100%. In Avangrid, the green energy supplied to buildings in fiscal year 2023 amounts to 44%.

The energy savings derived from the efficiency actions carried out in 2023 have been greater than 7,300 GJ.

Waste management

As part of its circular economy plan, waste is managed in accordance with the following principles:

- Minimise the generation of waste at source.
- Maximise the reuse, recycling and recovery of waste.
- Promote awareness-raising campaigns regarding the minimisation of waste.
- Specific treatment and management of hazardous waste.

Waste generated

Hazardous waste (HW) and non-hazardous waste (NHW) generated (excluding radioactive waste) is as follows:

Total residuos por tipo (t)						
	2023		2022		2021	
	Non-hazardous waste	Hazardous waste	Non-hazardous waste	Hazardous waste	Non-hazardous waste	Hazardous waste
Electrical/electronic waste	550	5,612	152	7,390	76	7,097
Construction waste	186,025	684	123,344	1,796	176,458	2,133
Urban solid waste	20,231	43	21,474	36	12,239	62
Thermal-process waste	380	42	2,889	44	2,097	3
Oils and liquid fuels	0	6,022	0	4,598	0	4,262
Batteries	6	225	24	248	4	195
Other waste	115,396	2,336	196,152	3,600	265,614	2,308
Total waste	**322,587**	**14,964**	**344,036**	**17,713**	**456,489**	**16,058**

Nuclear waste

In keeping with its commitment to transparent disclosure to its Stakeholders, Iberdrola provides additional information about its nuclear power generation park ("General Radioactive Waste Plan", Enresa [27]). The radioactive waste that is generated undergoes reduction, reuse, segregation, recycling and recovery processes as part of the safe management thereof.

Iberdrola's nuclear power plants are covered by the Environmental Radiological Monitoring Programme of the Nuclear Safety Council of Spain, the purpose of which is to monitor the dispersion into the environment of controlled discharges from facilities and to determine and monitor radiological quality throughout the country. [28]

Low-low level and medium-low level radioactive waste generated in 2023 is shown in the following table:

Hazardous waste generated in nuclear power plants 2023					
	Producción Neta (GWh)	Residuos baja-baja actividad		Residuos baja-media actividad	
		Producidos (m^3)	Producidos (m^3 / GWh)	Producidos (m^3)	Producidos (m^3 / GWh)
Cofrentes nuclear power plant	7,950	139	0.02	199	0.03
Partially-owned nuclear plants	15,834	93	0.01	37	0.00

As regards high-level waste, 468 fuel elements (FEs) were generated at Cofrentes and taken to Individual Temporary Storage (Almacén Temporal Individualizado) (ATI) during 2023.

(27) Enresa: Empresa nacional de residuos radioactivos, S.A.

(28) For more information, see the technical reports on environmental radiological monitoring issued by the Nuclear Safety Council, available at www.csn.es

Waste destination classification

The following tables show waste that is diverted from disposal, specifying the type of operation involved (e.g. reuse, recycling and other).

Waste diverted from disposal

Total waste diverted from disposal, by recovery operation (t)						
	2023		2022		2021	
	Non-hazardous waste	Hazardous waste	Non-hazardous waste	Hazardous waste	Non-hazardous waste	Hazardous waste
Reuse	77,227	1,657	42,954	2,875	49,095	2,058
Reciclado	131,581	6,921	123,980	7,636	121,871	7,476
Otras operaciones de valorización	14,441	2,030	18,362	1,167	8,878	1,184
Total	**223,249**	**10,608**	**185,296**	**11,678**	**179,845**	**10,718**

Total waste diverted from disposal (t)						
	2023		2022		2021	
	Non-hazardous waste	Hazardous waste	Non-hazardous waste	Hazardous waste	Non-hazardous waste	Hazardous waste
Electrical/electronic waste	548	4,672	146	6,031	76	5,334
Construction waste	176,625	285	109,359	601	162,074	455
Urban solid waste	11,302	39	13,270	28	5,906	50
Thermal-process waste	51	39	6	12	75	0
Oils and liquid fuels	0	4,588	0	3,932	0	3,124
Batteries	6	208	24	247	4	195
Other waste	34,717	776	62,490	827	11,709	1,559
Total	**223,249**	**10,608**	**185,296**	**11,678**	**179,845**	**10,718**

The following tables show waste directed to disposal, specifying the disposal operation (e.g., incineration, landfilling and other).

Waste directed to disposal

Waste directed to disposal, by disposal operation (t)						
	2023		2022		2021	
	Non-hazardous waste	Hazardous waste	Non-hazardous waste	Hazardous waste	Non-hazardous waste	Hazardous waste
Incineration (with energy recovery)	962	1,411	1,002	942	895	1,765
Incineration (without energy recovery)	97	111	1,549	475	569	169
Landfilling	87,532	1,968	108,109	2,375	196,761	564
Other disposal operations	10,694	866	48,079	2,243	78,422	1,843
Total	**99,284**	**4,356**	**158,739**	**6,035**	**276,646**	**4,341**

Waste directed to disposal, by composition (t)						
	2023		2022		2021	
	Non-hazardous waste	Hazardous waste	Non-hazardous waste	Hazardous waste	Non-hazardous waste	Hazardous waste
Electrical/electronic waste	1	939	6	1,360	0	1,762
Construction waste	9,396	400	13,985	1,194	14,384	1,676
Urban solid waste	8,880	4	8,205	8	6,333	11
Thermal-process waste	329	3	2,883	32	2,022	3
Oils and liquid fuels	0	1,433	0	667	0	137
Batteries	0	18	0	1	0	0
Other waste	80,678	1,559	133,661	2,773	253,906	747
Total	**99,284**	**4,356**	**158,739**	**6,035**	**276,646**	**4,341**

Additional information

Water

Total water withdrawal by source

Use of water in thermal generation 2023 (ML) [29]						
	Withdrawal				Discharge	
	Total withdrawal	Water withdrawal from offices	Withdrawal process and standby services	Withdrawal for cooling	Evaporation of water used for cooling	Discharge into receptor environment
Spain	1,512,411	79	3,765	1,508,566	54,250	1,460,371
United Kingdom[30]	57	53	4	0	0	0
United States	3,419	99	14	3,306[31]	2,050	1,371
Brazil	46,542	167	23	46,351	0	46,351
Mexico	182,901	418	1,917	180,566	21,199	156,107
IEI	34	3	30	0	0	0
Total	**1,745,364**	**819**	**5,753**	**1,738,789**	**77,499**	**1,664,200**

Water consumption in offices and monitoring facilities (m^3)			
	2023	2022	2021
Spain	76,670	61,170	83,500
United Kingdom	54,880	68,017	46,070
United States	531,000	66,797	100,930
Brazil	92,000	8,656	8,400
Mexico	6,590	N/D	1,670
IEI	1,400	N/D	1,230
Total	**762,540**	**204,640**	**241,800**

Effluents and waste

Total weight of waste by type and disposal method

Total Waste (t)			
	2023	2022	2021
Non-Hazardous Waste	322,587	344,036	456,489
Hazardous Waste	14,964	17,713	16,058
Total	**339,574**	**363,771**	**474,568**

(29) Withdrawal of water at the thermal generation facilities (coal, combined cycle, nuclear and cogeneration).
(30) United Kingdom does not have thermal generation.
(31) Water for cooling is not broken down, included in water from services.

Development and implementation of a birdlife protection system in wind farms using 3D radar and zoom cameras

Over the last two years, IBERDROLA has developed a pioneering system worldwide for the protection of birdlife in wind farms.

It is based on the use of a 3D radar that is capable of calculating with great precision the position of the birds that fly over the vicinity of the wind farm within a radius of approximately 5 kilometers. From the coordinates obtained, the trajectory of the bird is drawn and, using a developed algorithm, the probabilities of impact with all the wind turbines in the park are calculated every second. If a possible impact is anticipated, the system automatically sends a stop order to the corresponding wind turbine. Subsequently, and once the danger condition has passed, the wind turbine starts up again.

The radar also commands a zoom video camera that allows obtaining high-resolution images of the birds. These images are classified by species using an artificial vision module, which has been trained from images obtained at the wind farm and cataloged by an ornithologist. The system continually learns based on the new images obtained.

The system is fully configurable, and allows the creation of all types of statistics and heat maps with bird passage trajectories.

The 3D radar has been installed since 2023 in the CAVAR wind farm, located in the municipalities of Cadreita and Valtierra in Navarra, and demonstrates IBERDROLA's total commitment to the protection of birdlife.

Tree Programme

In 2020, and in keeping with its commitment to Goal 15 and Target 15.2 of the 2030 Agenda, Iberdrola launched the Iberdrola Tree Programme, the goal of which is to encourage the planting of 20 million trees by 2030. The programme includes three major lines of action or branches

The programme comprises three main lines of action known as “branches”, with the following objectives:

1: Conservation of natural heritagel. Iberdrola applies the mitigation hierarchy in all of its projects and prioritises alternatives that avoid affecting forest vegetation. In those cases where it is unavoidable, it works to minimise and compensate for this impact. The purpose of this branch is to compile information on these actions and the results thereof in order to monitor the conservation of natural heritage.

2: Regeneration and creation of natural value. This line of action aims to promote reforestation and restoration projects that contribute to forest regeneration. These projects are not linked to infrastructure mitigation or compensation and are voluntary.

3: Social value: research and awareness-raising. This line seeks to promote knowledge sharing, fostering collaboration, awareness and research with stakeholders among them.

To develop the actions of Branch 2, Iberdrola launched Carbon2Nature (C2N) with the mission of developing high-impact nature-based solutions projects that reduce the global carbon footprint, improve biodiversity and promote a sustainable economy. The objective of the new company is to capture and fix more than 61 million tons of CO_2 in nature, which it will make available to its clients in the form of carbon credits. In 2023 alone, C2N has promoted the planting of more than 770,000 trees in ecosystem conservation and restoration projects on more than 640 hectares in Spain.

In branch 1, it is worth highlighting the work carried out in Brazil, where in recent years actions have been carried out in the Permanent Preservation Areas of conservation and regeneration in more than 8,975 hectares and monitoring and conservation in more than 18,400 hectares. Among the actions for 2023, the creation of the Biodiversity Corridor has continued between the forested areas of the Iguaçu National Park - PNI with the Area of Direct Influence (AID) of the Baixo Iguaçu UHE, in the surroundings of the reservoir, and up to the To date, conservation work has been carried out on 1,135 hectares and more than 110,000 trees have been planted. The corridor will consist of more than 3,000 hectares. In addition, work has continued on the development of the Corumbá and Telespires Permanent Protection Areas, where in 2023 the planting of more than 50,000 trees will be promoted. 54,800 trees were also planted on 56.6 hectares at the Luzia Solar Complex. Neoenergia Networks carried out forest restoration actions in 2023 in which approximately 7,200 trees of native species were planted in São Paulo and Pernambuco, respectively.

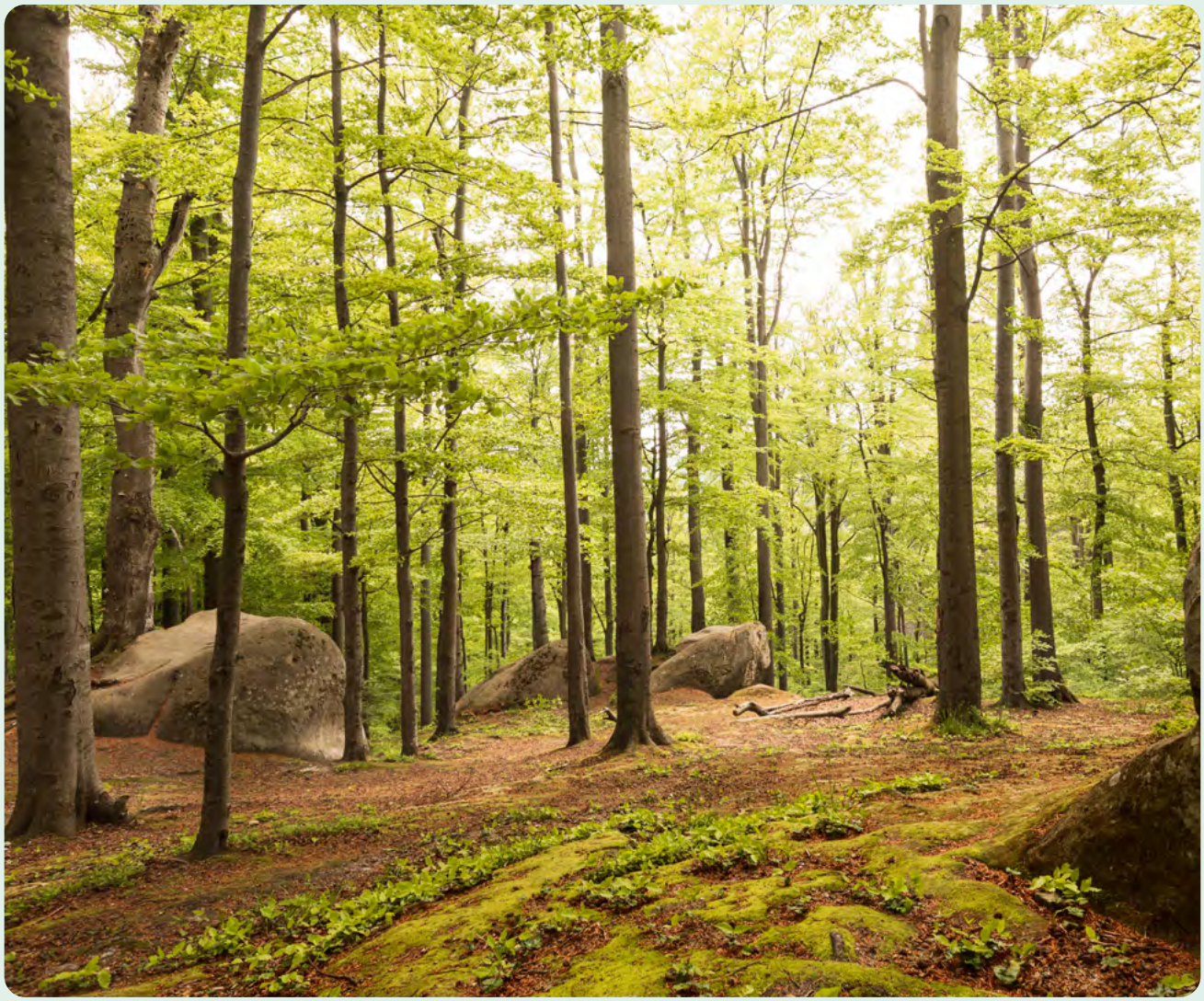
In the United Kingdom, in 2023, maintenance and replacement work has been carried out on the restoration work on the land occupied by the onshore cable of the East Anglia One Offshore Wind Farm, where more than 1,600 trees have been planted and planted 35 hectares of pastures and recovered 3,500 linear meters of hedges.

In Greece, more than 10,000 trees have been planted on almost 5 hectares and more than 2 hectares have been planted and treated with silviculture as part of the compensatory measures for the installation of an onshore wind farm.

In Mexico, the maintenance of more than 25 hectares planted in 2019 in the La Venta III wind farm and the 38 hectares in the Escobedo combined cycle plant (Northeast) continued, where to date more than 23,500 trees have been planted in this last location.

At the Támega hydroelectric complex (Portugal), reforestation and maintenance of the planted land continues, with more than 41,700 new trees planted in 2023.

Within the volunteer programs that are promoted in all countries, various reforestations have been carried out. Thanks to these initiatives, more than 6,000 trees have been planted in Spain, more than 1,500 in Brazil and almost 8,000 in Mexico. In the United Kingdom, the Trees For Life project continues, where this year 400 trees have been planted in the grove owned by ScottishPower.



ECOncrete Marine Mattresses

AVANGRID completed the Vineyard Windfarm, the first large-scale offshore wind project under construction in the United States, implementing green-engineered articulated concrete block mattresses (ACBM) on ECOncrete.

The mattresses are designed as cable protection to create a variety of habitats and environmental conditions that encourage the growth of marine flora and fauna, increase species richness, reduce the prevalence of invasive species and boost biodiversity. The marine mattresses used include ECOncrete bio-enhanced mix, surface complexity and a nature-inclusive design optimized to create habitats for a wide range of organisms. They are manufactured to prevent scour, weathering and erosion and to provide stabilization and protection to offshore infrastructure. Marine mattresses are designed to create a variety of habitats and environmental conditions that encourage the growth of marine flora and fauna, increase species richness, reduce the dominance of invasive species, and increase biodiversity.

Map showing the location of the Vineyard Wind 1 offshore wind farm