



edp

Biodiversity Report 2020 – 2022

We Choose Earth

This Report

In 2023, EDP integrated the sustainability report with the annual report and accounts in a single report, which addresses the Group's financial and non-financial performance for the 2022 calendar year.

As a recurrent practice of EDP since 2009, every three years EDP publishes a specific report for Biodiversity, complementing the information reported in the Sustainability Reports, now called the Integrated Report. In them, it details the meaning and context of Biodiversity for the Group, the strategy defined, the management approach implemented, and the good practices identified.

All technical and operational data characterising the company as reported on 31 December 2022, having been verified by an external company, within the scope of the EDP 2022 Report and Accounts. The specific Biodiversity information, particularly the initiatives reported, have been duly dated and report a period ranging from 1 January 2020 to 31 December 2022.

The content of this document does not follow a specific standard; however, it is important to mention the importance of the following standards for the current and future orientation of the EDP approach to Biodiversity: *GRI 304: Biodiversity 2016*; and *Science based Targets for Nature: initial guidance for business*.

This document focuses on four major pillars:

- Framework, encompassing some EDP's key indicators and its relationship with Biodiversity.
- Commitments, listing different objectives and defined goals.
- Management approach to the topic.
- Action in the territory, in the implementation of the mitigation hierarchy and/or through partnerships established with different stakeholders.

Revision

EDP will report annually on the progress of the performance indicators associated with this theme in its Integrated Report. The Biodiversity report will continue to be produced every three years, but will be brought forward in the event of a justified change in strategy.

Further information can be found at <https://www.edp.com/en/sustainability/protecting-planet#biodiversidade>. In order to improve the transparency of reporting, a glossary is included in this document, but a more comprehensive glossary, including the definition of quantitative indicators and methods used throughout the document, can be consulted online at www.edp.com

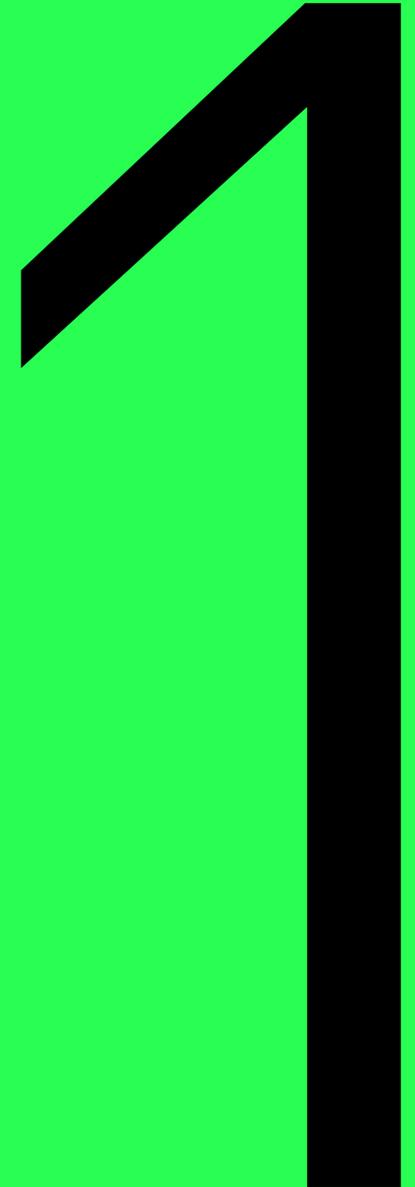
EDP would like to thank all its partners, especially for their support in drawing up some of the content and providing images used in this report

Index

01 Framework	04			
Our Business Model	06	03 Our approach	13	05 Annex
EDP in a biodiverse world	08	Management approach	14	Acronyms & glossary
Biodiversity in numbers	09	Mitigation hierarchy	15	Mitigation hierarchy in
		Impacts	15	the project cycle
		Risks and opportunities	19	43
02 Taking care of our planet	10			
Commitments to Biodiversity	12	04 Our Action	20	
		on the territory	21	
		in collaboration with	30	

Framework

Our Business Model	06
EDP in a biodiverse world	08
Biodiversity in numbers	09



Framework

Biodiversity is threatened and it has never been more urgent to restore damaged ecosystems. Today, species extinction rates vary between 1,000 to 10,000 times higher than usual, with one million species under threat.

According to the United Nations Environment Programme (UNEP), the destruction of marine and land ecosystems significantly affects the well-being of 3.3 billion people worldwide and has an associated annual cost of approximately 10% of gross world product in terms of species and ecosystem services essential for food, agriculture and the provision of quality water, amongst other.

The [World Economic Forum](#) (WEF) places Biodiversity loss among the most important global threats facing humanity in the next 2 to 5 years, which reinforces the increasing relevance of the issue on international agendas.

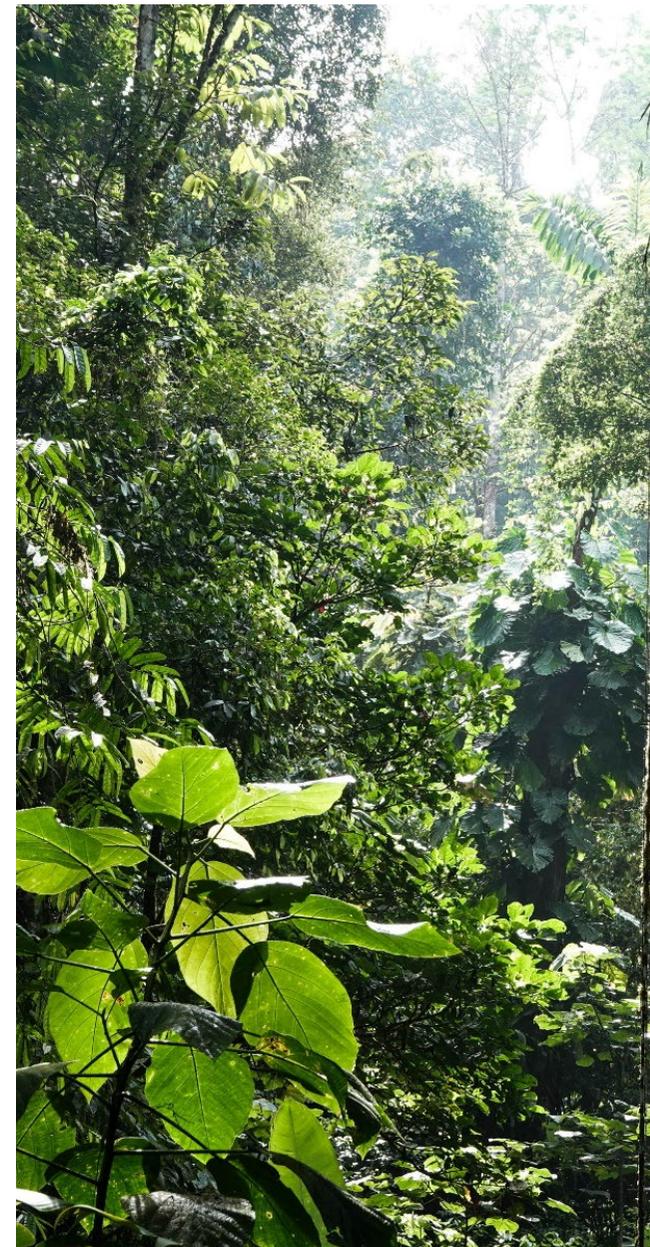
Today we are living the Decade for Ecosystem Restoration, established by the United Nations, with the aim of creating a broad political movement capable of reversing this current trend of degradation. With this movement, we are reminded of the dependence of human well-being on healthy ecosystems capable of providing the services essential to human survival.

After the global failure of the targets to halt the loss of Biodiversity set for 2020, 2022 is a year of redoubled hope with the establishment of a new 2030 Agenda, through the Kunming-Montreal Agreement, where the new Global Framework for Biodiversity was negotiated, with the mission to halt and reverse the trend of global Biodiversity loss by

2030, in other words, to work towards achieving **Positive Nature**. [Highlights include:](#)

- the clarion call for companies and financial institutions to assess and disclose their risks, impacts and dependencies on nature¹;
- greater ambition to reform all subsidies harmful to Biodiversity, eliminating or redirecting them as an incentive to positive choices for nature restoration;
- An emphasis on the role of Nature-based Solutions (NBS) in mitigating the impacts of climate change; adapting to and mitigating the risks of natural disasters; restoring, maintaining and enhancing nature's contributions to human well-being.

It is everyone's responsibility to respond to this challenge and companies are required to be more responsive. In 2023 we expect the stabilisation of relevant standards in this area, both for metrics aligned to science and as reporting requirements and greater international harmonisation.



Our Business Model

Trends

Market Forces

Stakeholders

Resources



Financial

- €13.2 Bn financial net debt
- €14.0 Bn equity



Physical

- 28 GW installed capacity (22 GW renewable)
- Shop network



Intellectual

- €186 M investment in innovation/R&D
- Brand



Human

- 13,211 employees
- Contractors



Social

- €22 M donations
- Business partners



Natural

- Renewable resources: wind, hydro and solar
- Non-renewable resources: gas, coal

Generation

Generation is the first activity in the value chain of the electricity sector. Power plants transform the various energy sources into electricity. These energy sources may be of renewable or non-renewable origin. In EDP, 75% of the energy produced comes from renewable sources.



Transmission

In the transmission the energy generated is delivered to the transport network, which is made of very high voltage lines and which then channels the energy to the distribution network. In EDP this is a growing business segment in Brazil.



A global energy company, leading the energy transition to create superior value.

Distribution

In the distribution activity the transported energy is channeled to the distribution grid. The distribution network allows the flow of energy to the supply points. Electricity distribution networks are composed of high, medium and low voltage lines and cables. EDP has made major investments in the modernization of its network such as the increase in the number of smart meters installed.



Supply

In the supply activity the distributed energy arrives at the supply point and is sold by the supplier. Throughout the electricity and gas value chain, supply is the closest activity to the customer and responsible for the relationship with final consumers. EDP has been focusing on developing new solutions for customers responding to new challenges of the energy transition.

Outputs



Financial

- €679 M net profit
- +0.5% TSR
- Debt management



Physical

- Quality and efficiency of energy supply
- 61 TWh energy produced
- 85,3 TWh distributed



Intellectual

- Innovative products and services
- Knowledge generated



Human

- 27.5% female employees
- 24 hours of training/employee
- 1.84 frequency rate (EDP + contractors)



Social

- €31 M social investment
- 10,551 hours of EDP volunteering time
- 80% customer satisfaction



Natural

- 160 tCO₂/GWh emissions
- 144 thousand TJ energy consumption
- Waste and water management

Impacts

- Minimizing financial risks
- Debt reduction

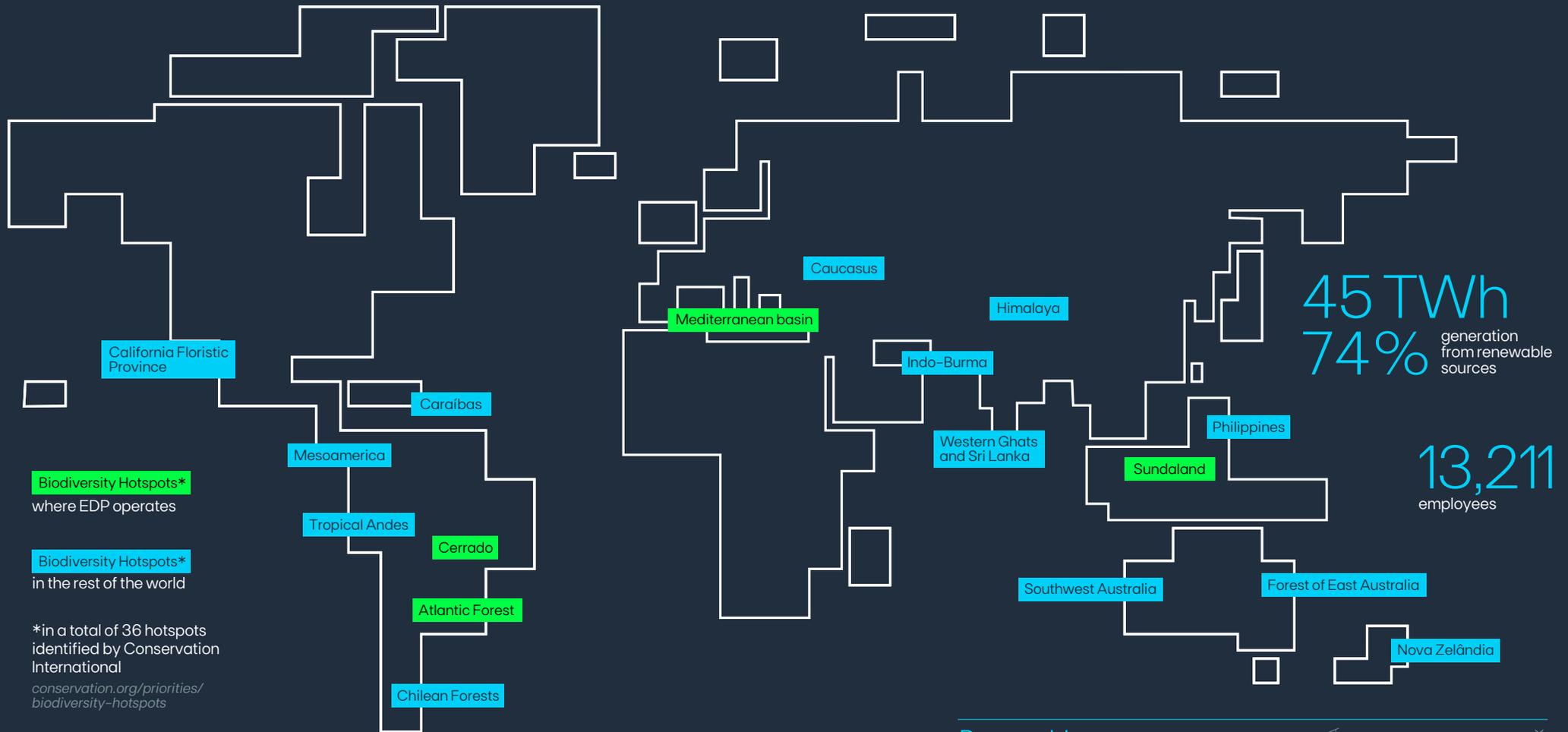
- Ensuring the quality and efficiency of energy supply
- Promotion of safety of facilities and equipment

- Promotion of innovation and research
- Promotion of the adoption of sustainable consumption behaviours
- Leveraging generated knowledge

- Promotion of diversity and equal opportunity
- Promotion of employee skills development
- Promotion of occupational health and safety
- Promotion of employee satisfaction

- Reputation and recognition
- Promotion of social investment
- Promotion of customer satisfaction
- Promotion of an ethical culture with suppliers

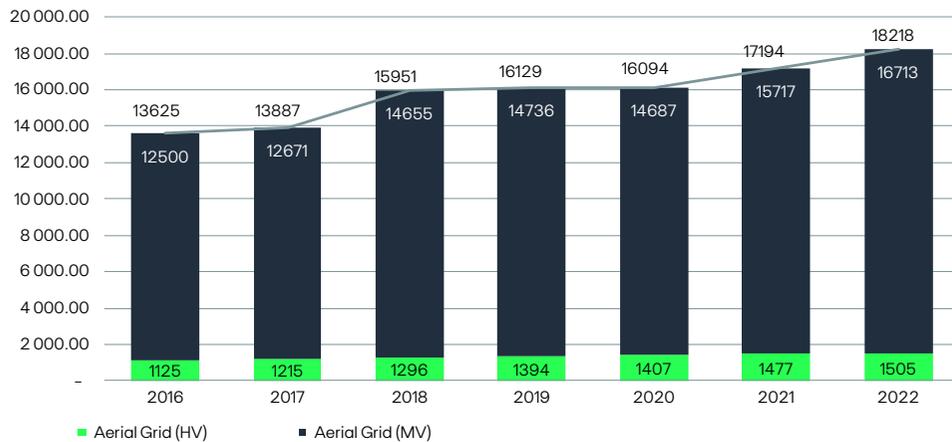
- -56% of specific emissions reduction S1+S2 (vs 2015)
- 6 TWh saved energy by customers (since 2015)
- Preservation of biodiversity



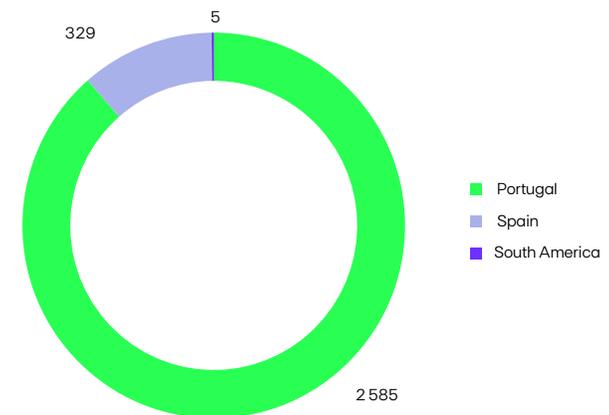
EDP in a biodiverse world

Renewables	56%	EBITDA	77%	Capex
Electricity Networks	38%	EBITDA	18%	Capex
Customers and Energy Management	11%	EBITDA	5% ¹	Capex

Biodiversity in numbers



2022	BU	Group	Portugal	Spain	South America	North America	The rest of Europe	APAC
Distribution in classified areas								
HV distribution grid in classified areas								
Aerial	km	1,521	915	209	397	n.a.	n.a.	n.a.
Subterranean	km	16	16	0	0	n.a.	n.a.	n.a.
MV distribution grid in classified areas								
Aerial	km	17,870	9,216	1,777	6,877	n.a.	n.a.	n.a.
Subterranean	km	1,158	1,004	145	9	n.a.	n.a.	n.a.
Substations in classified areas	/	72	29	28	15	n.a.	n.a.	n.a.
Transmission in classified areas								
Rede de transporte de alta tensão em áreas classificadas								
Aerial	km	84	n.a.	n.a.	84	n.a.	n.a.	n.a.
Subterranean	km	0	n.a.	n.a.	0	n.a.	n.a.	n.a.
Substations in classified areas	/	0	n.a.	n.a.	0	n.a.	n.a.	n.a.
Areas flooded by reservoirs	ha	2,919	2,585	329	5	n.a.	n.a.	n.a.
Environmental complaints	/	222	30	66	100	20	6	0



Taking care of our planet

Commitments to Biodiversity

12



Taking care of the planet

EDP renewed its ambition with the approval of the new sustainability strategy, reviewing the goals aligned to the new business plan 2023–2026, within the framework of a set of commitments for 2030, organised into five priority axes. With a plan to accelerate production from renewable energies, the **decarbonisation** of the Group's activities is a priority to be achieved based on four complementary priorities: **Communities**, **Planet** and **Partnerships**, and all framed within a strong **ESG culture**. This is the company's contribution to sustainable development.

Protecting the planet, contributing to its regeneration and to a positive nature in 2030 shapes EDP's ambition in its relationship with nature and the importance of its preservation. Operationalising this ambition is now the challenge that has been transformed into the corporate programme – Space4Nature, designed to accelerate the implementation of NbS in the Group and transform the organisation so that it focuses more on the territory. It is fundamental to keep the **mitigation hierarchy** as a basic tool for risk identification and mitigation, but it is urgent to adopt a more strategic and proactive approach leveraging social and environmental co-benefits, either through infrastructure and operations, policies and/or management models and approaches. This programme aims to:

- Gradually adopt new standards in line with science and translate them into internal procedures;
- Streamlining and adapting systems for closer and more effective Biodiversity management;
- Speed up operations in the territory, identifying opportunities in the different business units;
- Train EDP employees, internalising concepts and sharing good practices in the sector.

Decarbonize for a climate-positive world



Coal free by 2025



All green by 2030



Net Zero by 2040

We are



Empowering our communities for an active role in the transition

~€200 Mn in social investments (accumulated)

>3,000 new hires



Protecting our planet, contributing to its regeneration

100% projects with Net Gain Biodiversity tracking system

90% waste recovery along the value chain



Engaging our partners for an impactful transformation

100% suppliers compliant with ESG Due Diligence

90% of purchases volume aligned with EDP's ESG goals

We have

A strong **ESG culture** protecting and empowering human life

Aim to Zero fatal accidents

70% employees received ESG training

Remuneration linked to ESG

COMMITMENTS TO BIODIVERSITY

The [EDP environmental policy](#) establishes a set of general principles and commitments for environmental protection and a set of complementary specific commitments, among them for the protection of Biodiversity:

- Contribute to reducing Biodiversity loss, prioritising the mitigation hierarchy and aiming for a positive result in the Biodiversity balance in the long term
- Contribute to deepening scientific knowledge of Biodiversity and ecosystem services, especially through setting up partnerships.

Additionally, EDP took on another set of specific commitments, which guide its actions for the protection of Biodiversity:

“Not building new production facilities in areas included in the UNESCO World Heritage List”, ensuring that it continues to have no presence in these territories,

Achieve Biodiversity 'Net Gain' on all new projects (excludes transport) with significant residual impacts by 2030, the tracking system in place by 2026.

Have 100% of its facilities with Biodiversity Action Plans (PGB) defined and implemented by 2025, when these are recognised as having a high risk for Biodiversity, that is, when they are located in or near areas of conservation interest.

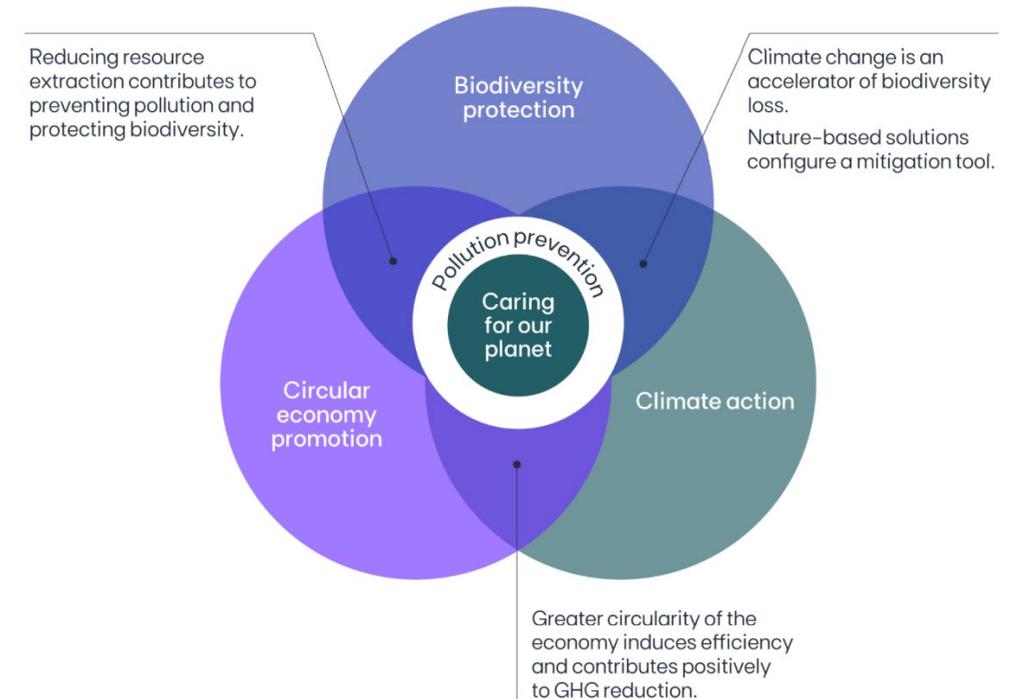
Undertake reforestation to compensate for any forest area where deforestation cannot be avoided (No net deforestation commitment),

Protect natural heritage and Biodiversity through the community contributions made by the EDP Group Social Investment Policy.

Actively contribute to the Sustainable Development Goals (SDGs) enshrined in the United Nation’s 2030 agenda, especially SDG 15 – Protecting Life on Land.

This action is shaped by an [Environmental Policy](#) which summarises the main commitments that safeguard the implementation and maintenance of environmental management systems, certified in accordance with ISO 14001:2015 by accredited external entities.

CARING FOR OUR PLANET



Our approach



Management approach	14
Mitigation hierarchy	15
Impacts	15
Risks and opportunities	19

Management approach

An adequate understanding of Biodiversity impacts and dependencies supports the company in managing its **Natural Capital** related risks and opportunities, both for its direct activities and along its supply chain. The corporate approach to the protection of Biodiversity allows EDP to anticipate regulatory pressures and to act in order to respond to society's expectations in the search for continuous improvement solutions.

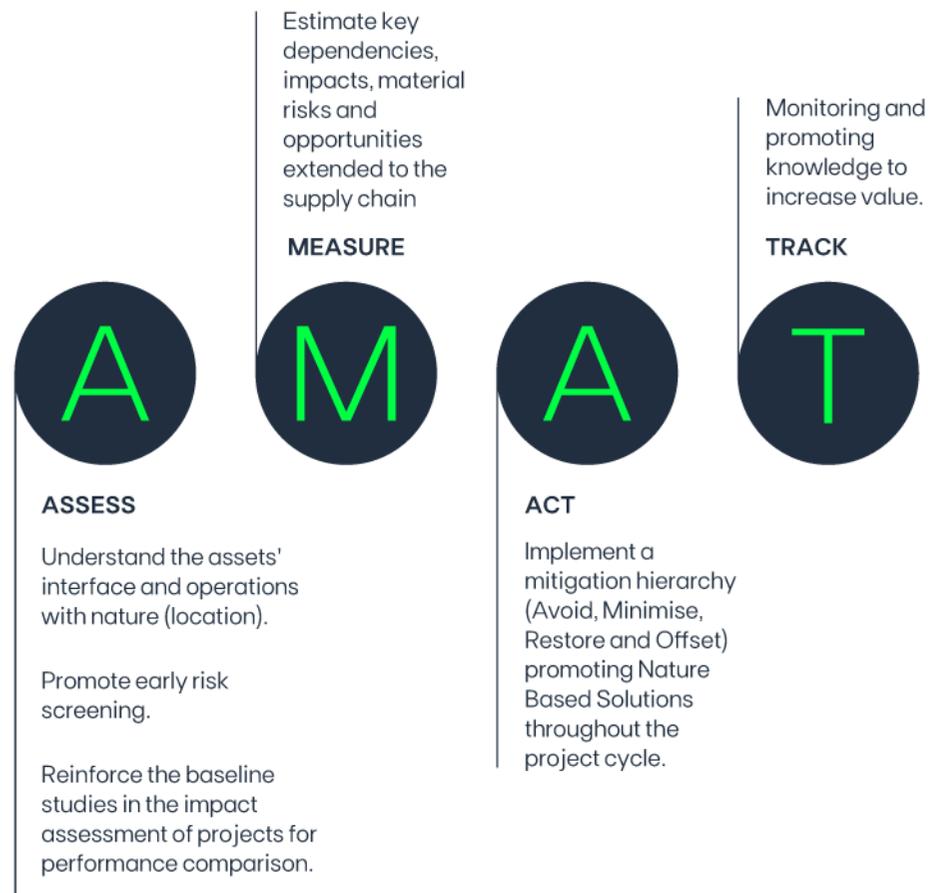
In the operational sphere, an **ecosystem approach** is adopted, soil, water, air and biological resources are integrated into the process of mitigating impacts on Biodiversity in a social-ecological context. This approach is supported by participative, long-term and **adaptive management** processes, capable of dealing with the natural dynamics of ecosystems and uncertainties associated with their response and behaviours. Complementarily, scientific knowledge is promoted in the areas when gaps are identified, through strategic partnerships.

At project level, EDP has committed to an ambition of **"Net Gain"** Biodiversity in new projects, from 2030 onwards, ensuring a positive balance between potential local impacts and the positive result of the respective mitigation measures. To achieve this:

- Apply the **mitigation hierarchy** throughout the entire cycle of power generation, transmission and distribution projects, focusing on the earliest planning stages
- Implement **Biodiversity Action Plans** (BAPs) in projects located in or near areas of conservation interest.

The implementation strategy is based on the adoption of the **AMAT** methodology, inspired by SBTN's Step-by-Step Guide to Nature based target setting²

² [step by step guidance: setting SBTs for Nature, 2020.](#)



Mitigation hierarchy

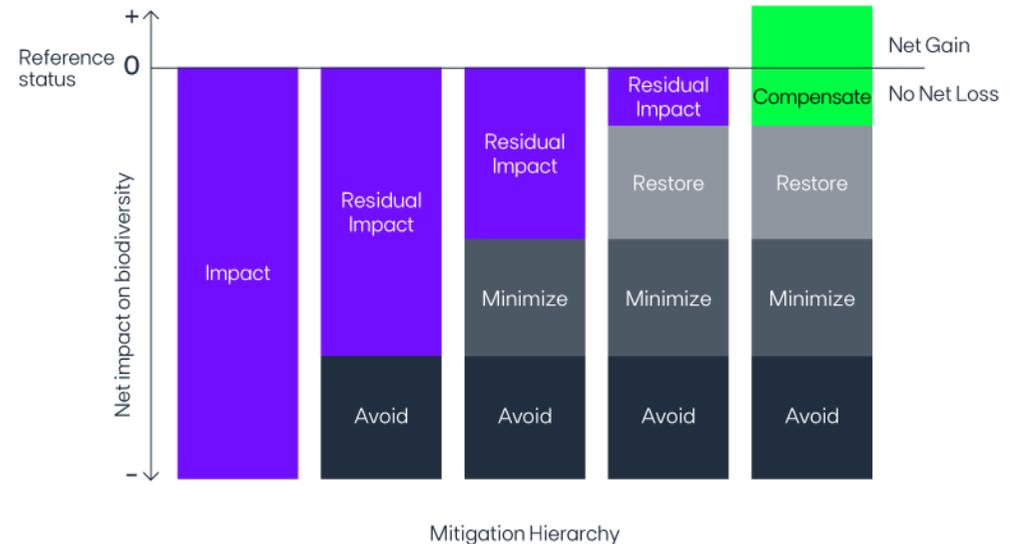
The mitigation hierarchy is defined as a sequence of actions to: anticipate and **avoid** potential impacts; **minimise**, when it is not possible to avoid entirely; **restore**, when there are impacts; **compensate**, when residual impacts remain. It is a gradual and cumulative action aimed at reducing impact until there are no adverse effects on Biodiversity and contributes to achieving at least a "No Net Loss" (NNL) level. Achieving "Net Gain" (NG) requires the implementation of Biodiversity offsets.

Following the mitigation hierarchy, EDP:

- **Avoids:** identifies situations where it is possible to avoid impacts, already in the early design phase, through a careful selection of the place or period of time in which to establish infrastructure.
- **Minimises:** after baseline survey of the state of local Biodiversity, measures are taken to reduce the duration, intensity and/or extent of impacts that cannot be completely avoided.
- **Restores/Rehabilitates:** after the construction phase, it restores and rehabilitates the affected ecosystems, namely by bringing construction sites, temporary accesses, etc, back to their natural state.
- **Compensates (offsets):** when the previous phases have not proven sufficient to negate the project's impact on local Biodiversity, measures are taken to compensate for significant adverse residual impacts, in the pursuit of net gains for Biodiversity.

Application of the mitigation hierarchy, in Biodiversity objective "NNL" or "NG", is achieved with Biodiversity offsets to compensate for significant residual impacts caused by the project that persist because they have not been fully mitigated by previous prevention, minimisation and restoration actions(Ver página 43).

MITIGATION HIERARCHY



Impacts

EDP assesses its main operational activities' potential effects on Biodiversity. This analysis ensures that they are covered by the environmental management systems implemented by the Group's business units and allows better systematisation and optimisation of Biodiversity management practices throughout the Group.

Hydroelectric Generation



Activity	Environmental aspect	Potential environmental impact	Potential effect on biodiversity	What we do
Presence of dam/weir	Upstream flooding and removal of water and sediment downstream	Alterations/disturbance of habitats, loss of river continuum	Disruption of habitats	<ul style="list-style-type: none"> • Restoration and compensation for damage caused by the degradation, destruction, suppression and fragmentation of affected habitats • Improvement of habitats in near and far proximity to projects • Ensure artificial spawning, recovery of water lines and fish ladders
Drained reservoir	Reduction of the mass of available water	Degradation of the chemical, biological and morphological characteristics of water courses		
Handling dangerous products	Accidental / poor handling spillages	Soil pollution (by absorption) and water pollution (surface and subterranean)	Disturbance and destruction of species / Potential water quality reduction	
Dam rupture	Sudden flooding of downstream land	Fragmentation of habitats and potential reduction in water quality	Suppression of riparian galleries/ Disturbance and destruction of flora and potential drowning of fauna	

Thermal Generation



Combustion	Emission of acidic gases, such as NO _x and SO ₂	Acid rain	Degradation and disturbance of habitats and ecosystems	<ul style="list-style-type: none"> • Minimize the impact of acidifying pollutants responsible for acid rain (NO₂ e SO₂) • Use fuels with smaller sulfur concentrations and implement denitrification and desulfurization systems.
Transportation of raw materials (value chain)	Greenhouse gas emissions (GGE)	Climate Change	Global biodiversity loss	
Extraction of raw materials (value chain)	Consumption of raw materials	Alterations/disturbance of habitats	Degradation and disturbance of habitats and ecosystems	

Wind Generation



Activity	Environmental aspect	Potential environmental impact	Potential effect on biodiversity	What we do
Development and construction of wind farms	Renewable energy production	Obstacle in migratory ecological corridor	Loss of biodiversity	<ul style="list-style-type: none"> • Environmental viability studies • Environmental impact studies and assessments to identify potential impacts • Monitoring of environmental aspects during construction • Monitoring of collisions of birds and bats and their cumulative effect on species • Internal environmental inspections • Limit indiscriminate accesses that disturb sensitive species and habitats • Specific conservation projects in the area • Cleaning and rehabilitating projects to return land to initial state • Environmental monitoring and surveillance of decommissioning and repowering phases
	Alterations/disturbance of terrain			
Operation of wind farms	Potential flora and fauna damage (mainly birds and bats)	Alterations / disturbance of habitats		
Dismantling and repowering of wind farms	Change of the landscape			
	Waste production			

Solar Generation



Development and construction of solar parks	Alterations/disturbance of terrain	Obstacle in migratory ecological corridor	Loss of biodiversity	<ul style="list-style-type: none"> • Environmental viability studies • Environmental impact studies and assessments to identify potential impacts • Monitoring of environmental aspects during construction • Monitoring of collisions of birds and bats and their cumulative effect on species • Internal environmental inspections • Limit indiscriminate accesses that disturb sensitive species and habitats • Specific conservation projects in the area • Cleaning and rehabilitating projects to return land to initial state • Environmental monitoring and surveillance of decommissioning and repowering phases
	Landscape alteration			
Operation of solar parks	Water consumption	Alterations / disturbance of habitats		
Dismantling and repowering of solar parks	Waste production			

Species potentially affected

In 1964, the International Union for the Conservation of Nature and Natural Resources (IUCN) created what has become the largest catalogue for the conservation status of plant, animal, fungal and protozoan species on the entire planet: the [IUCN Red List of Threatened Species](#). The categories vary compared to the risk level of the species and according to criteria that include: the rate of population decline (understood as the number of individuals per species), the size and distribution of the population, the area of geographical distribution and the degree of fragmentation.

IUCN THREAT CATEGORIES

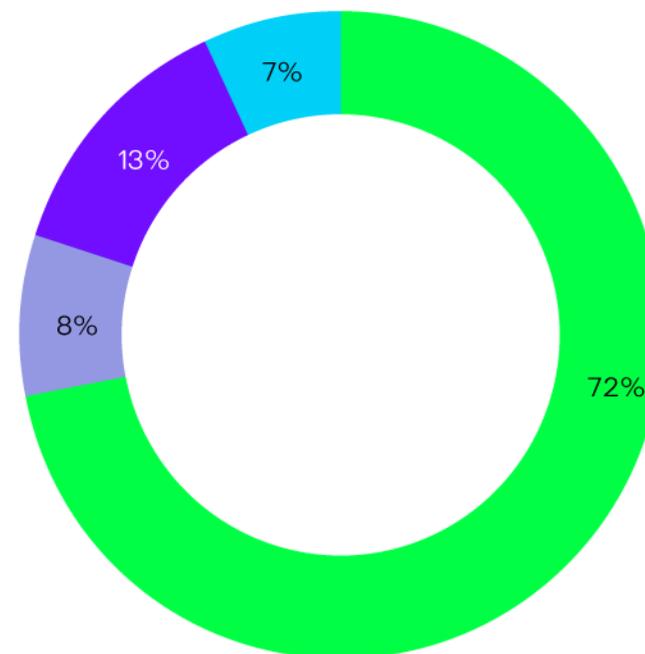


The [list of species potentially impacted \(LEPI\)](#) by EDP's activities is updated annually³ based on the species mentioned in the different environmental impact assessment studies of electricity generation, transmission and distribution projects of the EDP Group, regardless of the threat status of the species at global or regional level.

These are animals or plants that, given their geographical distribution or record of occurrence, are potentially impacted by EDP's activities, during the construction and operation phases. Based on this list, EDP defines targeted mitigation measures, prioritising them according to their threat status, global or local, listed in the table on the [previous page](#).

In 2022, EDP increased the LEPI by 16.5%, counting a total of 857 species of animals (76%) and plants (24%). This increase is essentially the result of the extension of this information to transport networks in Brazil, whose routes cross the following Biodiversity hotspots: [Brazilian Cerrado and the Atlantic Forest Region](#).

TOTAL POTENTIALLY IMPACTED SPECIES



³Species are added to or removed from the list according to whether they are species identified in new assets acquired/constructed or in old assets sold from EDP's portfolio.

Risks and opportunities

As the world sees increasing Biodiversity loss, the risk of regulatory, financial and social liability pressure also increases. The integration of new corporate approaches, new concepts, such as SbN, and the growing concern of the world to redirect the financing of the economy, in favour of the regeneration of ecosystems (EU taxonomy), and to know the impacts and dependencies on/of natural capital (TNFD and SBTN), creates risks and opportunities that should be explored.



Main Risks

Financial

- Increased costs related to the mitigation hierarchy with "net gain" biodiversity objectives.
- Increased requirements from financial institutions in assessing ESG performance.

Social responsibility

- Increased performance requirements in obtaining a social licence to operate.
- Increased awareness and demands from society regarding the protection of biodiversity.

Regulatory

- Increased requirements for impacts' assessment and disclosure of impacts, dependencies and risks in relation to nature and their mitigation.



Main Opportunities

Access to Finance

- Contractual advantages in access to finance.

Operational

- Risk anticipation and operational launch of the production, transmission and distribution assets.
- Reduction of costs.
- NbS as a response to climate change and ecosystem restoration.
- Competitive advantages in the competitive market.

Fulfilment of commitments and targets

- Strengthening of ESG performance with reputational gains.

Our Action

on the territory 21
in collaboration with 30



Our action on the territory

Ecological flows

Guaranteeing a fluvial continuum at hydroelectric power stations

BU involved: EDP Produção (Portugal)



Pigargo project

Reintroducing a specie that has disappeared from Spanish territory: the white-tailed eagle

BU involved: EDP Spain (Spain)



Fish transposition systems

Minimise barrier effect with fish passage devices in dams

BU involved: EDP Produção (Portugal)



Hectarea Natura

Renaturalising ecosystems in order to promote natural capital

BU involved: EDP Spain (Spain)



Hectarea Zero

Adapting to climate change

BU involved: EDP Spain (Spain)



20 years minimizing impacts on avifauna

Mitigate in partnership the impact of the distribution network

BU involved: E-REDES; LPN; SPEA; QUERCUS and ICNF (Portugal)



Environmental programme of São Manoel

Develop and involve the indigenous people

BU involved: EDP Brasil (Brazil)



Ecological flows

Guaranteeing an **ecological flow** (EC) in hydroelectric power stations (HF) built in the last century was one of the great challenges for EDP in this last decade. The most recent AH have already been equipped with devices for discharging EC, but most of the dams built in the last century were not equipped with these devices or, if they were, their function and objectives were different, to allow other uses downstream (for agriculture, for operating mills, for industries, fishing, public supply, etc), and they were not designed and sized for the conservation and protection of river ecosystems.

The EC is a fundamental minimisation measure to guarantee river continuity and, consequently, achieve and ensure a "Good Ecological Potential" of the river sections downstream of the dams, in alignment with the Water Framework Directive, to ensure the conservation and protection of aquatic ecosystems and to promote the sustainable use of water resources.

In Portugal, the AH with storage, mostly built in the last century, between the 20s and 70s, is where the issue of EC becomes material due to the impact it generates on Biodiversity, while the run-of-the-river dams guarantee a minimum natural flow compatible with Biodiversity. In order to guarantee an **ecological flow regime** (HEC) in these reservoir dams it was necessary to install new equipment to guarantee the continuous flow of water, called **ecological flow release devices** (EFD).

The challenge covered two phases. The first, between 2009 and 2011, focused on defining the most appropriate HEC for the flora and fauna communities of each region. In the second phase, between 2012 and 2022, solutions were developed to favour the adaptation of already existing infrastructures. This last phase involved 16 AH, divided into three phased programming groups based on the degree of technical complexity associated with each situation. Thus:

- the first group, of lesser complexity, comprising the Alto Rabagão, Vilarinho das Furnas, Vilar and Paradela hydroelectric power stations, adapted existing auxiliary pipelines or derived from larger diameter ones.
- in the second group, of intermediate complexity, comprising the Pracana, Venda Nova, Castelo do Bode, Alto Lindoso and Trinta weirs, which either did not have accessible structures for adapting to the release of ecological flows, or had structures with characteristics that made this adaptation difficult, it was necessary to develop solutions that allowed the adaptation of existing pipelines, for example, with bottom drains.
- the third group, of greater complexity, comprising the Caldeirão, Touvedo and Raiva hydroelectric power stations, involved drilling the concrete wall of the dams to install the DLCE. This type of solution required special care and methods, such as diamond wire cutting and sealing metal ducts in concrete.

Outside these dam groups were the Salamonde and Caniçada dams, whose implementation of the DLCEs took place at the same time as the works on the flood spillways of these AHs, forming part of the block of these structures.

Overall, the implementation process of the HEC, namely at the level of the construction of the DLCEs, has been concluded. Despite technical and logistical difficulties, by 2019, HEC were already being released in fifteen (15), even though in some cases the HEC agreed with the Authority would not be released until 2022, after completion of all new devices.

At the same time, the respective monitoring programmes to evaluate the effectiveness of HEC are underway. In the case of Alto Cávado, in order to avoid degradation of the water quality downstream of the dam, it was decided, exceptionally, not to implement a HEC. However, this stretch of the river is also subject to a monitoring programme to assess the evolution of the ecological status.

The monitoring programmes, which in many cases already have a 7-year cycle, cover biological, chemical, physical-chemical and hydromorphological quality elements, habitat characterisation and the survey of constraints on the effectiveness of the HEC downstream of the dams. The results show a trend towards improvement in the ecological quality of bodies of water, with the implementation of the HEC, although some external constraints, not controlled by EDP, related to agro-industrial and urban pollution in the vicinity of hydroelectric plants, affect the good results.

Pigargo Project

The White-tailed eagle (European Pigargo in Spain), with the scientific name *Haliaeetus albicilla*, is a species of eagle that lives in Northern Europe and Asia. It is a seabird, which feeds mainly on fish.

The bald eagle is included among the 13 species of animals listed as extinct throughout the Spanish natural environment in historical times, in a legal regulation in force since August 2018 and which aims to promote projects to reintroduce these species given as missing from Spanish territory.

In May 2021, the pigargo project aimed at restoring the presence of the bald eagle on the Cantabrian coast was launched, based on the annual release of up to twenty juvenile specimens originating from Norway, for at least seven years. The aim is to build up a stable breeding population and allow nature to play its part. This year, seven chicks were released of which only five currently survive.

The project has the support and participation of the Ministry of Economic Transition and Demographic Challenge (MITECO), the TRAGSATEC group, the Government of the Principality of Asturias, the Government of Cantabria, the Norwegian Environment Agency (Norwegian Ministry of Environment), the municipality of Ribadedeva, and EDP Spain, with GREFA (Group for the Rehabilitation of Native Fauna) being the entity responsible for the technical execution of the project.

In July 2022, a new batch of chicks (eighteen) was released. In both phases, EDP Spain participated in the adaptation of the overhead electricity distribution network installations in the area surrounding the eagles' breeding habitat. This is a large bird (up to 2.5 m) and the power lines are adapted with anti-electrocution and anti-collision devices, measures that are additional to those required by current legislation for the protection of avifauna.

In 2022, there were two cases of electrocution outside the most critical area (one in September and another in November), where network adaptation measures were not initially envisaged. However, the supports in question have been adapted and the development of new actions has been articulated with GREFA for the coming months, including an innovative pilot initiative related to a device that detects bird specimens approaching the supports and scares them away with the emission of a sound. Depending on the monitoring results of this pilot initiative, it is planned to extend this initiative with the implementation of these devices where eagles are more common.



Fish transposition systems

All dams, regardless of their purpose, are intended to block the natural course of the river and constitute a water reserve, thus causing a barrier effect on the river and preventing the free movement of fish.

The dams under concession to EDP – Touvedo (Lima river), Crestuma–Lever, Carrapatelo, Régua, Valeira and Pocinho (Douro river) and Belver (Tagus river) – built between the 1950s and the 1990s, provided for the construction of fish passage devices to minimise the impact of the barrier effect.

The fish lift installed on the Touvedo dam consists of a collecting channel, a tank and an upper channel. The fish are induced to enter and travel through the lower channel, enter the vat, which cyclically lifts the fish to the upper channel, at 4-hour intervals, and are released into the channel at the upstream level, through which they swim to the reservoir.

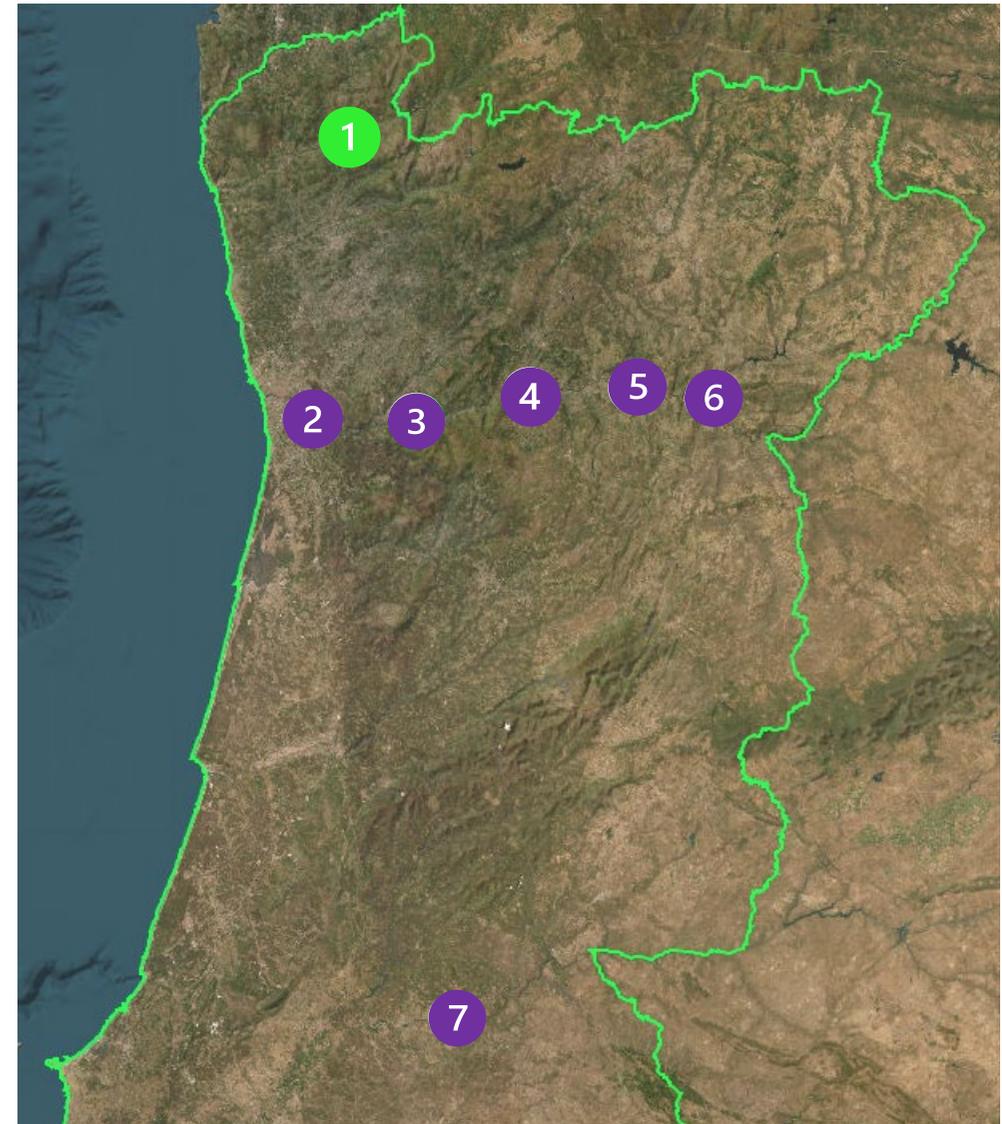
The fish ladders (installed at the dams on the Douro River and at Belver on the Tagus River) have two chambers, one downstream at a lower level and one upstream at a higher level, which are connected by a gallery or well, and an upper channel that links the upper chamber to the reservoir. Its operation comprises four distinct phases – attracting/fishing, filling, passing fish and emptying – which, when carried out together, complete a cycle or lock.

In order to understand and optimise the use of fish passages, monitoring is carried out through image recording and subsequent counting and identification of fish/species as well as the relationship of these passages with different variables that may influence fish passages. In the case of the Douro River, and bearing in mind that the dam further downstream (Crestuma) is influenced by the tides, periodic surveys of professional fishermen are also carried out in order to obtain qualitative information on the species caught.

Due to wear and tear and technological evolution, some equipment has become obsolete and, between 2020 and 2022, EDP developed improvement works on the fish transposition systems at mechanical, equipment and software level. The automation and video systems were renewed, providing them with recent and more automatic and autonomous technologies, allowing there to be effective communication between all the lock systems and reducing failures.

Together, all these efforts increase the efficiency of EDP's fish passes in a commitment to the Biodiversity of the areas where it operates.

DAMS WITH ACTIVE FISH TRANSPOSITION SYSTEMS



Map of Portugal with dam locations and indication of the type of system adopted:
 1-Touvedo (lift), 2- Crestuma–Lever (lock), 3- Carrapatelo (lock), 4- Régua (lock), 5- Valeira (lock), 6- Pocinho (lock), 7- Belver (lock).

Hectarea Natura

EDP in Spain owns a plot of land of approximately 38ha, of which 26ha are occupied by landfill for ash and slag from the Aboño thermal power station. This land, with a high extension of eucalyptus trees, will now be renaturalised, with the aim of promoting its natural capital by maximising the different ecosystem services that can result from an approach that goes beyond short-term economic benefits.

ECOSYSTEM SERVICES APPROACH

BEFORE

SUPPLY SERVICES

Harvesting fast-growing timber

REGULATION SERVICES

Soil protection, regulation of the hydrological cycle, carbon sequestration

CULTURAL SERVICES

Tourism and hunting

AFTER

PROCUREMENT SERVICES

Reduced: elimination of eucalyptus and planting of indigenous species

REGULATION SERVICES

Improved: Autochthonous species increase biodiversity, with reinforcement in pest control, hydrological cycle, soil fertility

CULTURAL SERVICES

Improved: Encouraging the use and enjoyment of repopulated areas

Intervention in this territory will involve ensuring FSC forestry certification, which attests to the promotion of habitat restoration; conservation of forest carbon reserves; and maintenance of the infiltration capacity of the hydrographic basin.



Hectarea Zero

The use of SbN in Spain has also been tested as a climate change adaptation measure, namely through the mitigation of erosion risk, associated with sloping areas.

With 24 ha being reforested around the Tanes hydroelectric power station, the stability of the intervened land will be improved, reducing erosion caused by runoff and preventing landslides. This project will also allow the registration of CO₂ emissions on the Spanish national registry platform, enabling their possible transaction and recognition as offset for a minimum of 30 years.

The success of this SbN has demonstrated the importance of thinking of nature as an asset to be promoted and its scalability is now being studied in a broad intervention programme to mitigate the risk of climate change, protecting EDP assets and simultaneously improving local Biodiversity.

LESSONS LEARNED

Protection of EDP assets

Acting on the territory with the aim of capturing CO₂ is a limited approach. Using SbN has made it possible to act to protect the company's assets and this is a differentiating factor

Collaborative environment

This approach promoted a collaborative environment with the different local stakeholders, especially local authorities and suppliers.

Economic viability

The pilot exercise confirmed economic viability, with a unit cost that was competitive with available alternatives, such as the purchase of emission rights.

Recognition

The recognition of an innovative SbN approach will enable in a future extension to other territories these projects to be candidates for complementary funding.



Minimise impacts on avifauna

At the end of the 1990s, E-REDES still faced the challenge of expanding the electricity distribution network in a country where part of the inland territory was still in darkness. Expansion that crossed mountains, rivers and valleys, passing through sensitive habitats and consequently began to raise concerns about the protection of the natural values existing there, which reinforced the need to start systematising internal planning procedures in the face of the challenges.

In 2003 the first "Avifauna Protocol" was formalised and in 2022 the implementation of the IX edition was concluded ("Avifauna IX Protocol"), a commitment to the protection of avifauna based on a partnership model that brings together universities, research centres, environmental non-governmental organisations and national authorities, and is focused on the development and implementation of active measures to minimise the impact of power lines on avifauna

Twenty years later, there is a renewed need to expand and reinforce the electricity grid, but now to support the expansion of renewable production and electric mobility in a context of energy transition and electrification of the economy promoted by the National Energy and Climate Plan 2021–2030 (PNEC2030), which poses new challenges to the sector in articulation with the need to extend the current Natura 2000 Network to meet European and international targets.

Avifauna Protocols, an unusual partnership

In mainland Portugal, E-REDES has been correcting existing power lines for the protection of birdlife, supported by protocols and by a technical commission (Comissão Técnica de Acompanhamento das Linhas Eléctricas e Aves-CTALEA), composed of E-REDES, 3 Environmental Non-Governmental Organisations (LPN; SPEA and QUERCUS) and by the national authority supervising Biodiversity conservation in Portugal (ICNF).

Among the main actions carried out within the scope of the Birdlife Protocols, we highlight the surveys and monitoring of overhead power lines; the production of collision and electrocution risk charts, by target species with a high conservation status; the application of more efficient technologies to minimise the impact of overhead power lines on birdlife; and the ranking of potentially dangerous overhead power lines, with a view to voluntary correction.

In October 2022 E-REDES celebrated 20 years of protecting birdlife in the distribution network, with a face-to-face meeting, to mark the work done to minimise the impact of its activity on Biodiversity.

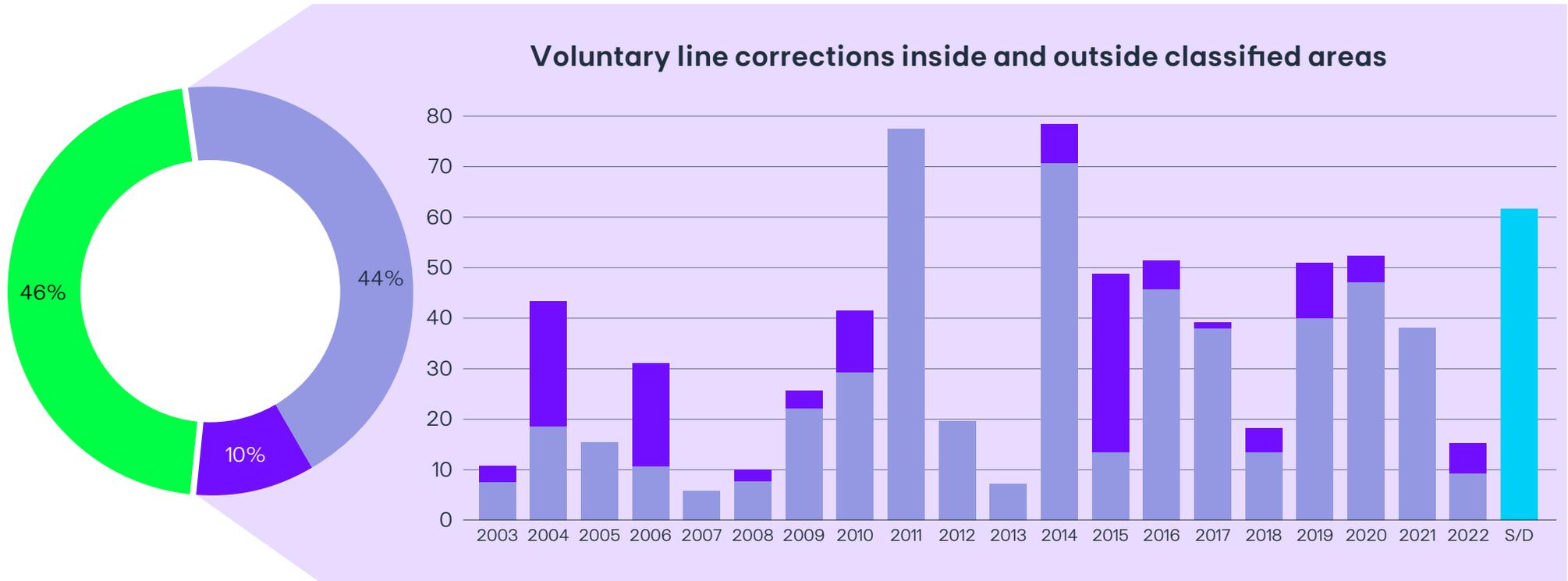
AVIFAUNA PROTECTION RESULTS

1371.7 km of electricity distribution lines corrected with bird protection measures since 2003:

- **598.15 km** - voluntary corrections to existing lines within Classified Areas.
- **143.39 km** - voluntary corrections to existing lines within Classified Areas.
- **630.18 km** - new power lines licensed with avifauna measures.

Target species for conservation including but not limited to Iberian Imperial Eagle^(a), Great Bustard^(b), Little Bustard^(c), Cinereous Vulture^(d) and Bonelli's Eagle^(e), significantly reducing one of the most important threats;

^(a) scientific name: *Aquila adalberti*; ^(b) common English name: "Great Bustard", scientific name: *Aquila adalberti*; ^(c) common English name: "little bustard", scientific name: *Tetrax tetrax*. ^(d) common English name: "Cinereous Vulture", scientific name: "*Aegypius monachus*" ^(e) common English name: "Bonelli's Eagle", scientific name: "*Aquila fasciata*"



1371.7 km Total of distribution lines with avifauna measurements

630.18 Km
Licensed power lines with avifauna measures

143.39 Km
Voluntary corrections to existing lines outside Classified Areas

598.15 Km
Voluntary corrections to existing lines within Classified Areas

62.13 Km
voluntary corrections within and outside Classified Areas of other projects and without reference to the year of execution

Note: The kilometres of electric lines intervened in the scope of the protocols Avifauna II, III, IV and VIII; of LIFE Rupis; PEAR (Emergency Plan for the Recovery of Three Species of Rupicolous Birds) and Others, were distributed equally over the project planning period.

Environmental programme of São Manoel

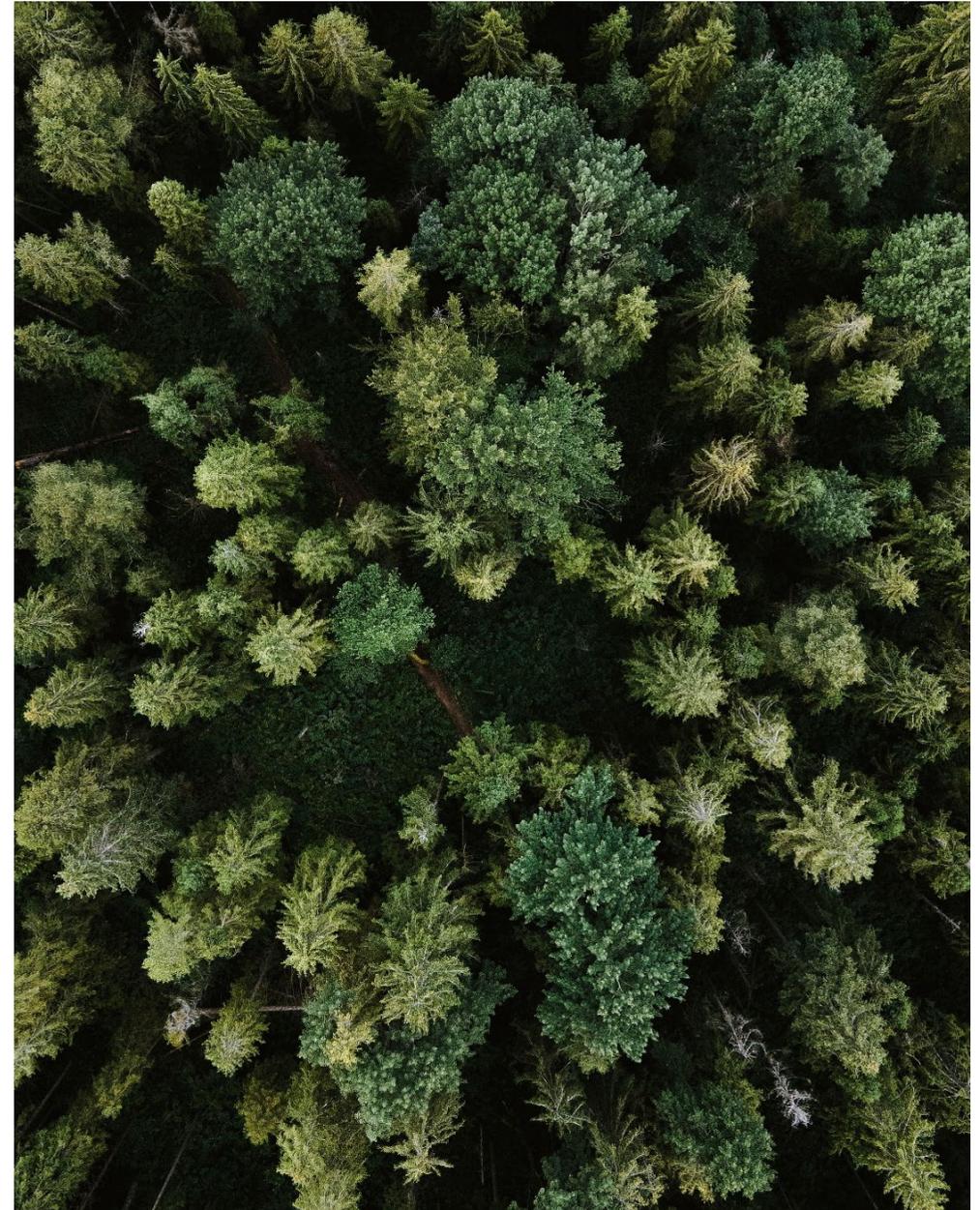
The São Manoel hydroelectric power plant (HPP), built on the Teles Pires river between the states of Mato Grosso and Pará, Brazil, has an installed capacity of 735.84 MW and the reservoir covers 6,600 ha of flooded area stretching across the municipalities of Paranaíta (MT) and Jacareacanga (PA) along 40 km, where lives traditional indigenous communities made up of around 1400 people divided in 19 villages located on the banks of the Teles Pires river.

The approved Permanent Preservation Area (APP) of the reservoir is 4,096.49 hectares, formed by 696.01 of islands and 1,181.40 and 2,219.08 located on the right and left bank of the Teles Pires river, respectively. In 2022 the entire APP had been implemented, preserved or recovered.

The environmental programme linked to the licensing process for the São Manoel hydroelectric power station is based on four vectors of action:

- Compensation for the removal of vegetation in the area required for the formation of the reservoir for the purpose of restoring and improving habitats in areas of environmental preservation, through planting a total area of 1,174.85 hectares (corresponding to the forest replacement and compensation provided for in the intervention in the APP. In 2022, 695.03 hectares (cumulative value) were executed, within a target of 100 ha/year.
- Basic Indigenous Environmental Programme (PBAI) with the objective of social and environmental action to support the development and involvement of the indigenous population during the construction and operation phases of the undertaking.
- Management of Biodiversity in the area of influence with a focus on genetic research, monitoring to inform the best decision for the conservation of ichthyofauna and monitoring of possible changes in the remaining plant communities in the reservoir's AAP (aerial and riverine) and definition of respective restoration/rehabilitation actions if necessary.

The Environmental programme is broad and integrated, where Biodiversity is an essential component, via direct conservation actions and the indigenous Basic Environmental Programme (PBAI), which despite being geared towards the development and involvement of local communities, the sub-programmes are closely related to the preservation of local Biodiversity.



Our action in collaboration with

Act4Nature

Reinforcing the importance of Biodiversity – BCSD Portugal



BU involved: EDP SA;
(Portugal)



ForestWISE

Forest and fire integrated management



BU involved: E-REDES
(Portugal)



Compromisso empresarial brasileiro

Reinforcing the importance of Biodiversity – CEBDS



BU involved: EDP Brasil
(Brazil)



Mitigate impacts of renewables energies

Produce good practices' guidelines



BU involved: EDP SA;
EDP Renewables (Global)



EDP Chair

Promoting scientific knowledge



BU involved: EDP PRODUÇÃO;
LABLEC and E-REDES



Act4Nature

An initiative launched by BCSD Portugal on the International Day of Biological Diversity, on 22 May 2020, comes under Act4Nature International, a movement created in France in 2018 by the association Entreprises pour l'Environnement (EpE), also a member of the Global Network of the World Business Council for Sustainable Development (WBCSD).

Streamlined by the Biodiversity working group, of which EDP is a member and which also includes the Steering Committee Committee and Advisory Board of this initiative.

EDP has joined the Initiative [Act4Nature Initiative in 2020](#) by signing up to the 10 common commitments and 12 individual commitments by 2030.

In 2022, the Biodiversity working group organised and hosted the "[1st Natural Capital Conference](#)", which took place on 23/11/2022, in Lisbon.

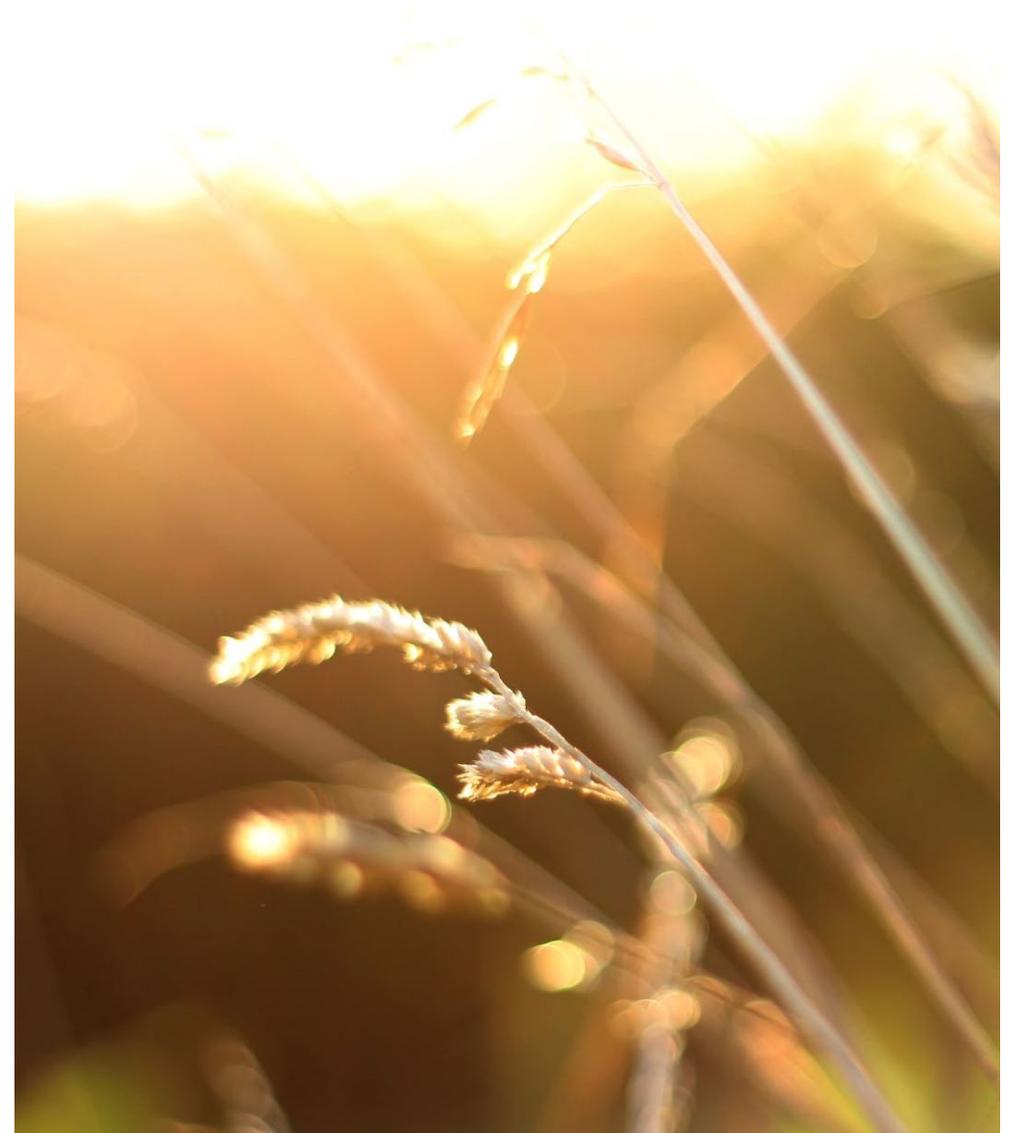
Results

At the end of 2022, all targets are in line with what was established in each specific commitment. Of those that were planned to be executed in the 2020–2021 period, they were fully executed by 2021.

The commitments, for which the execution period is still open, are under development. However, some of these are being reassessed/redefined due to an update of the strategic management approach or pending stabilisation of indicators and metrics that are being defined internationally.

More detailed information on results and products can be found in the document: [Commitments Performance](#).

act4nature
international



Brazilian business commitment

Initiative launched in October 2019 by the Brazilian Business Council for Sustainable Development CEBDS, aims to emphasise the importance of Biodiversity and ecosystem services for businesses. The commitment is formatted by nine goals, which have as their fundamental principle the conservation and sustainable use of natural resources based on sustainable consumption and production patterns.

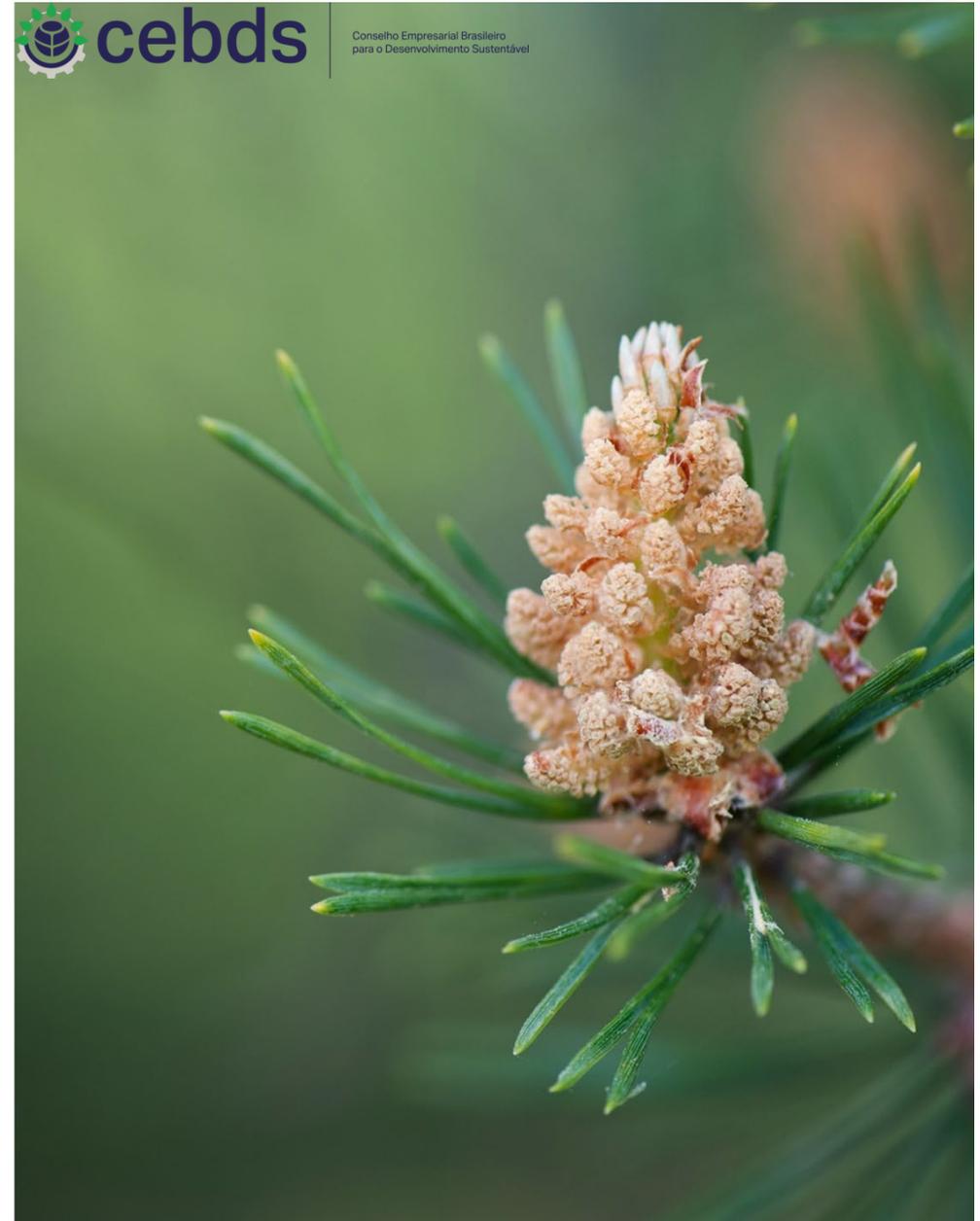
The commitments aim to contribute to the targets, addressed in the pillars of prevention, mitigation, compensation and production and sharing of Biodiversity information.

Results

At the end of 2022, all targets are in line with what was established in each specific commitment.

All targets have actions in progress that are subject to re-evaluation/definition depending on the evolution of approaches, indicators and metrics that are being defined internationally.

More detailed information on results and products can be found in the document: [Commitments Performance](#).



EDP Chair

For the period 2018–2021, the Chair focused on a line of scientific research dedicated to the management of impacts, conservation and monitoring of Biodiversity, marked, above all, by work on the development and implementation of genomic tools (metabarcoding) for monitoring aquatic ecosystems. An emerging area of knowledge which makes use of DNA collected in the environment (environmental DNA or environmental genomics).

Pillars of Research

Environmental Genomics

Resources to eDNA techniques with the aim of:

- To develop new cost-efficient methods of biological inventory and monitoring, based on environmental DNA, and simultaneously generating relevant information for an adaptive management of the impacts on Biodiversity and thus contribute to the achievement of “Net Gain” goals for Biodiversity. Work carried out in close coordination with the national authority and internally with EDP Labeltec.
- Promote the transfer of technology and internal knowledge to EDP Labeltec.

Mitigation of impacts of hydroelectric exploitation

- Support EDP Produção in the development of scientific knowledge to support the mitigation of impacts generated by the construction and operation of hydroelectric plants: Baixo Sabor and Foz Tua.

Impacts of the electrical distribution network

- To support E-REDES in the consolidation of scientific knowledge associated with the impact of power lines on birdlife in coordination with mitigation work already being carried out or being developed by the Technical and Scientific Committee for Monitoring of Power Lines and Birds (CTALEA). A research component that seeks to provide an additional scientific contribution to the work that has been carried out by CTALEA, since 2003, under the successive Avifauna Protocols. [See page 27](#)



Research pillar

ENVIRONMENTAL GENOMICS

IMPACTS MITIGATION (Hydroelectric)

IMPACTS MITIGATION (Electricity distribution network)

Line of research I

Zebra mussel (invasive species):
 Development of the MinION handheld device based low-cost and faster molecular techniques for early detection of invasive and other species.
 Methodological validation tests were carried out in the context of:
 • Early detection of invasive species, the mussel zebra mussel *Dreissena Polymopha*, an environmental and operational threat in hydroelectric production.
 • Implementation of a real-time quantitative PCR* technique real-time PCR* technique at Labelec, including: protocols water filtration, DNA extraction and purification DNA, DNA amplification and analysis of results.

Ecological effects and control of aquatic invasive species:
 Findings from the studies allowed directing mitigation to more cost-effective measures.
 The focus of study was given to two groups of exotic species: freshwater crayfish and fishes.

Data organisation
 Collection and systematisation of biological information mainly for modelling work on the Bonelli's eagle population.

Line of research II

Ecological characterization:
 Development of the portable device MinION device based on molecular techniques low-cost and faster molecular techniques for early detection of invasive species and others.
 The methodological validation tests tests were carried out in the context of native and native and exotic species.

Impact assessment and mitigation on bats:
 Findings from the studies show that the effect of deforestation and inundation of bat roosting areas has led to an increase in the number of individuals in uses of nearby refuges, albeit transient.

Effectiveness of mitigation measures on bird mortality. Modelling the impacts of measures on population dynamics.
 Research lines combined and worked around available and consistent data (Bonelli's eagle population -*Aquila fasciata*- from Southern Portugal). Statistical modelling and publication of scientific papers in international journals.
 Case study focused on the analysis of the interaction with power lines (behavioural and demographic component).
 Conclusions: demonstrated a behavioural idiosyncrasy* of this species in relation to the lines (distancing or attraction). Verified a significant reduction effect, however measures should be applied case by case. However, measures must be applied on a case by case basis.

Line of research III

Ecological quality monitoring:
 Development of protocols based eDNA technique for demonstration of equivalent methodology and respective recognition by the national authority as an alternative to conventional methodologies, which involve more spatialised labour and more field and laboratory field and laboratory tasks (more expensive and time consuming).

International database (GBIF):**
 EDP published 98 datasets, with 1,781,014 records. Data that has been frequently used by the scientific community.
 To date (31-12-2022), there have been more than 400,000 downloads, with citations of the data in 264 scientific publications **.

* PCR – Polymerase Chain Reaction. Extremely useful technique due to its specificity and speed. It is based on the duplication of the DNA chain "in vitro".
 ** GBIF – Global Biodiversity Information Facility; EDP – Energias de Portugal (gbif.org)



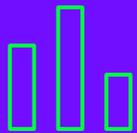
41 Scientific publications

Published or accepted for publication in international scientific journals, with relevance to the objectives of the EDP Chair in Biodiversity.



11 Academic theses

Obtaining an academic degree developed with the involvement of the EDP Chair in Biodiversity.



1,7M Data published

98 datasets were published, with 1.781.014 occurrence records, which have been frequently used by the scientific community.

By 31-12-2022, over 400,000 downloads, with citations of the data in 264 scientific publications*.



6x Leverage

Considering only the 5 largest projects raised with the involvement of the Chair, in an overall funding of €36M. A contribution allocation of 10% was considered.



8 Additional activities

Communication:

Workshop on molecular approaches for monitoring of aquatic ecosystems and biodiversity (18-12-2018).

Conference: como enfrentar o perigoso declínio da natureza? Da avaliação do ipbes à ação (10 and 11 september 2019)

Lifewatch eric thematic meeting on genomics28, 26-28 february 2020

Act4Nature Portugal/Business Council for Sustainable Development (BCSD). Iniciativa do BCSD-Portugal

Active involvement in research:

Project: AQUAnOMICS - aquatic monitoring using environmental dna and OMICS technologies

Project: EuropaBON – Europa biodiversity observation network: integrating data streams to support policy.

Project: BIOPOLIS - Enhancing the transference of scientific and technological knowledge through a new Centre of Excellence in Environmental Biology, Ecosystems and AgroBiodiversity.

Project: European participation in global biodiversity genomics endeavours aimed at identifying all biodiversity on Earth

*On 31-01-2023, data cited in 264 publications: Journal article (199); Book (1); Generic (4); Book section (5); Conference Proceedings (3); Preprint (36); Report (7); Web page (1) and Thesis (8).

ForestWISE

[ForestWISE](#)'s mission - Collaborative Laboratory for Integrated Forest and Fire Management is to promote the integrated management of forests and fire, based on (co)research and development activities, knowledge and technology transfer, acting as a bridge between industry, academia and public administration with impacts on the forest and fire sectors and society.

Research lines include:

- Forest and fire management (risk management Forest and fire landscape data; forest management; ecosystem services and the valorisation of non-timber forest products)
- Risk management (forest and fire landscape data; fire suppression, ecosystem restoration and fuel management systems)

E-REDES operates a 68,000 km long overhead distribution network of high and medium voltage electricity, of which 28,000 km is in forest areas, in an increasingly adverse context due to exposure to extreme events, more and more frequent, where the scourge of forest fires has become one of the significant causes of loss of Biodiversity in Portugal. Added to all this is the difficulty in regenerating forest ecosystems, caused, among other things, by the presence of invasive species, thus increasing the urgency of preserving Biodiversity and the regeneration of ecosystems.

The partnership with the associated laboratory ForestWISE, through the knowledge generated through research and innovation in the search for solutions, allows opening space to the possibilities of a more effective action on the ground, namely in areas intervened by E-REDES, as it translates into an important instrument of vegetation management planning and land management.

The concept of compatible occupations introduced by the new rural fires law as an alternative to the classic removal of fuel that did not take into account the impact on Biodiversity, whose technical standards for fuel management in the fuel management strips are awaiting definition in a specific regulation by the national authority on Biodiversity (ICNF), is one of the research and innovation areas of this partnership.

In 2022, ForestWISE developed a study entitled "Compatible Occupations on Fuel Management Strips (FGC) - Support for Species Selection", which on the E-REDES side opens space for a management of fuel management strips promoting Nature Based Solutions (NbS), as a way to solve the problem of the proximity of vegetation to the power grid and the conflict of interests as the owner

The study covered the whole of mainland Portugal and the multicriteria analysis used for the selection of plant species was intended to generate local socio-economic benefits, considering not only the climatic and biophysical conditions, flammability and combustibility risk, but also the preferences of local agents and opportunities for economic valorisation of woody and non-woody products.



Mitigate impacts on renewables

In 2019, the IUCN (International Union for Conservation of Nature) partnered with a number of companies involved in building new renewable power to develop technical–scientific guidance to support accelerated renewable energy growth compatible with Biodiversity conservation. EDP was an active part of this partnership, which also included the participation of other international environmental NGOs, ensuring, as a whole, the scientific knowledge and field experience essential to the success of the project.

The collaboration established allowed the preparation of a set of guides aimed at project promoters for the construction and operation of renewable wind (onshore and offshore) and solar technologies. The work included:

- the production of practical guidelines for the early identification of risks associated with these technologies, acting on the mitigation hierarchy;
- the production of guidelines for impact mitigation, based on the most up-to-date scientific production;
- the promotion of capacity–building workshops targeted at participating companies and the financial community;
- sharing case studies with the community.

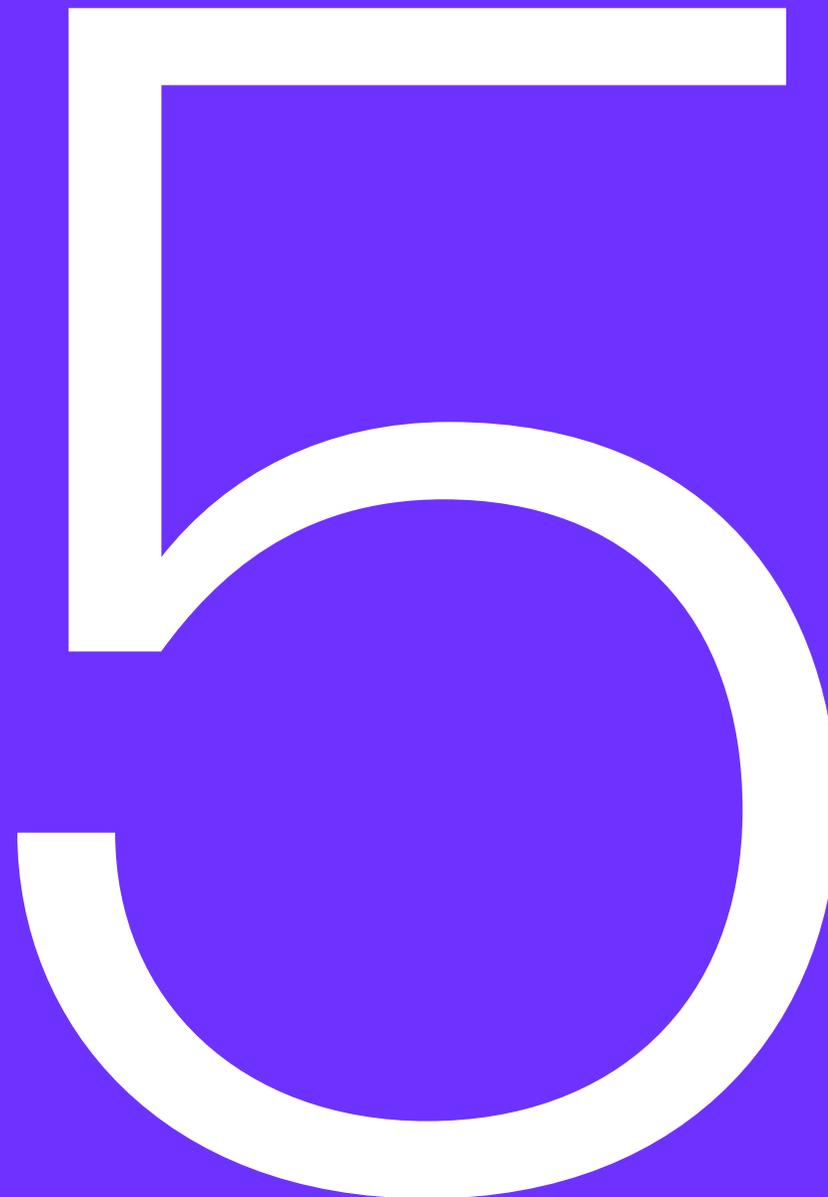
Based on the main document: *Mitigating Biodiversity impacts associated with solar and wind energy development*, guides for early risk assessment in offshore wind, onshore wind and solar construction have also been published.

Completed in 2021, the set of publications resulting from the work carried out can be consulted on the IUCN website, at [Renewable Energy and Nature](#).

For EDP, this work contributed to greater awareness and internal learning, but also to sharing its experience with organisations concerned with nature conservation, both by making known the challenges faced by the teams on a daily basis, as well as the good practices implemented in different operating contexts.



Annex



Acronyms & Glossary	39
Mitigation hierarchy in the project cycle	43

Acronyms & glossary

List of acronyms and abbreviations

To facilitate the exposition and without prejudice to the occasional use of the designations and expressions they substitute, the following acronyms and abbreviations are used throughout this report:

B

BAP–Biodiversity Action Plan
BCSD–Corporate Council for Sustainable Development
BU–Business Unit

C

CEBDS– Brazilian Corporate Council for Sustainable Development
CIBIO-InBIO–Research Centre in Biodiversity and Genetic Resources, and Associate Laboratory
CTALEA– Technical and Scientific Committee for Monitoring Power Lines and Birds

D

DLCE–Devices for Ecological Flow
DNA–deoxyribonucleic acid

E

eDNA–environmental DNA
ESG–Environmental, Social and Governance
EU–European Union

F

FGC–Fuel Management Tracks

G

GRI–Global Reporting Initiative

H

HEC – Ecological Flow Scheme

I

ICNF–Institute for Nature Conservation and Forests
IUCN–International Union for Conservation of Nature
IUCN Red List–International Union for Conservation of Nature red list

L

LEPI–List of potentially impacted species
LPN–League for the Protection of Nature

N

NbS–Nature based Solutions
NG–Net Gain
NNL–No Net Loss

P

PPA–Permanent Preservation Area

Q

Quercus–National Association of Nature Conservation

S

SBTN–Science Based Targets Network
SDG–Sustainable Development Goals

SPEA–Portuguese Society for the Study of Birds

T

TNFD–Taskforce on Nature–related Financial Disclosures

U

UNEP–United Nations Environment Programme

UNESCO–United Nations Educational, Scientific and Cultural

W

WBCSD–World Business Council for Sustainable Development.

WEF–World Economic Forum

Concepts and definitions

A

ADAPTIVE MANAGEMENT assumes that technical and scientific knowledge is limited and dynamic, making regular adjustment necessary, resulting from the knowledge generated by the programmes monitoring its ecological effectiveness. Thus, a good diagnostic phase characterising the state of conservation and identification of conservation targets and threats, is essential for the design of courses of actions and their implementation. Finally, integrated monitoring ensures that the assessment oversees the path to success, introducing the necessary ongoing improvement (Source: IAIA).

AREAS OF CONSERVATION INTEREST Includes areas under legal management and regulation (areas belonging to networks of national protected areas or others, such as the Natura 2000 network in EU countries) and key areas for Biodiversity (KBA – Key Biodiversity Areas) recognised by international organisations in this field (example: IBA's, Ramsar sites, etc.).

B

BIODIVERSITY The variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

BIODIVERSITY OFFSETS These are actions used to offset the significant adverse residual impacts that they replace after all possible prevention, minimisation and restoration and compensation actions have been implemented. There are two main types of offsets defined by how they produce earnings:

- **Avoidable losses:** When gains are generated by reducing or preventing the continued decline of a priority species or ecosystem, which is not caused by the project.
- **Restoration:** Where habitat is created or improved outside the project impact site to benefit the species or ecosystem being affected.

BIOSPHERE RESERVES this is a statute or label attributed by the UNESCO “Man and the Biosphere – MAB” Programme. <https://en.unesco.org/biosphere/wnbr>

D

DAM WITH ACCUMULATION RESERVOIRS Dams with large reservoirs to store water and regulate their functioning. Its storage capacity is obtained by means of a dam and can adapt to needs more easily, as well as to periods of drought.

E

ECOLOGICAL FLOW RATE The ecological flow rate is understood as the flow rate that ensures the conservation and maintenance of natural aquatic ecosystems, the development and production of aquaculture species and the conservation and maintenance of riparian ecosystems.

ECOSYSTEM A dynamic complex of plant, animal and micro-organism communities and the non-living environment, interacting as a functional unit.

ECOSYSTEM APPROACH a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable manner, the integrity of ecosystems, scientific knowledge, ecosystem services, where adaptive management are building blocks of this approach and human beings, with their cultural diversity, are a component of the ecosystems where they are found. It is one of the pillars of the implementation of the Convention on Biological Diversity (CBD).

ECOSYSTEM SERVICES these are the functions of ecosystems that are useful to humans and include:

- **Provisioning Services:** Goods or products obtained from ecosystems, such as food, fresh water, timber, fibre and genetic resources;
- **Regulatory Services:** Benefits obtained from the regulation and control that ecosystems exert over natural processes such as climate, disease, erosion, water flows, pollination, as well as protection against natural hazards;
- **Cultural and Recreational Services:** Non-material benefits obtained from ecosystems, such as recreational activities, spiritual and aesthetic;
- **Supporting Services:** natural processes, such as nutrient cycling and primary production, that maintain the other services. (source: BCSD).

I

IMPORTANT BIRD AREAS (IBA) Sites of global importance for the conservation of bird species. These are the sites necessary to ensure the survival of viable populations of most of the world's bird species. The IBA network also holds a large and representative proportion of other Biodiversity. IBAs are a subset of Key Biodiversity Areas (KBAs).

K

KEY BIODIVERSITY AREAS (KBA): Sites that contribute significantly to the overall persistence of Biodiversity, in terrestrial, freshwater and marine ecosystems. Represent the most important sites for the conservation of Biodiversity worldwide, and are identified at the national level using globally standardised criteria and thresholds.

M

MITIGATION HIERARCHY Framework for risk management and mitigation of potential impacts related to Biodiversity and ecosystem services. It results in a sequence of actions to anticipate and avoid, and where avoidance is not possible, minimise, and where impacts occur, restore, and where significant residual impacts remain, offset Biodiversity-related risks, and impacts on affected communities and the environment.

N

NATURA 2000 NETWORK The Natura 2000 Network is an ecological network for the European Union Community area resulting from the application of Council Directive 79/409/EEC of 2 April 1979 (Birds Directive) - repealed by Directive 2009/147/EC of 30 November 2009 - and Directive 92/43/EEC (Habitats Directive) which aims to ensure the long-term conservation of the most threatened species and habitats in Europe, helping to halt the loss of Biodiversity. This is the main instrument for nature conservation in the European Union (source: ICNF) [Natura 2000 viewer \(europa.eu\)](https://europa.eu/natura2000/viewer).

NATURAL CAPITAL Natural capital is all renewable and non-renewable environmental resources and processes that provide goods or services that support the past, present or future prosperity of an organisation. It includes air, water, land, minerals and forests, Biodiversity and ecosystem health.

NATURAL HABITAT These are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition.

NATURE The global natural ecosystem in its entirety. This covers both the stock of natural capital assets and the way they interact with each other. In this sense, Biodiversity is a characteristic of nature, as it refers to the presence of diversity throughout the natural ecosystem.

NATURE-BASED SOLUTIONS Action to protect, conserve, restore, and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems that address social, economic and environmental challenges effectively and adaptively, while providing human well-being, ecosystem services, resilience and Biodiversity benefits. (*United Nations Environment Programme – UNEP*)

NATURE-RELATED RISKS AND OPPORTUNITIES In this document, the term "nature-related risks and opportunities" is used broadly to refer to the risks and opportunities for an organisation posed by the links between its activities and nature. In addition to short-term financial risks, this includes long-term risks represented by their impact and dependencies on nature. As a result, this term includes an organisation's Impacts on nature, dependencies on nature, and the financial risks and opportunities arising from these Impacts and dependencies.

NET GAIN Conservation objective corresponding to the point at which project-related impacts on Biodiversity and ecosystem services are offset by compensatory measures taken in accordance with the mitigation hierarchy, so that a net gain is achieved. It can also be referred to as Net Positive Impact (NPI)

NO NET LOSS Conservation Objective corresponding to the point at which project-related impacts are balanced by measures taken through application of the mitigation hierarchy, so that no Biodiversity loss remains.

P

PERMANENT PRESERVATION AREA An area protected by Brazilian environmental legislation, which may or may not be covered by natural vegetation. The main objective of these areas is to provide human beings with an ecologically balanced environment, through environmental preservation of the water resources, the landscape, the stability of the soil and the set of living beings existing there. As a rule, no human intervention should occur, since it is not possible to use or exploit the resources of that area; However, intervention may be possible, if is duly authorised.

R

REFERENCE STATE OR REFERENCE SCENARIO A description of existing conditions that provides a starting point (for example, pre-project Biodiversity status) with which comparisons can be made (for example, post-impact Biodiversity status), thereby enabling the change/alteration to be quantified.

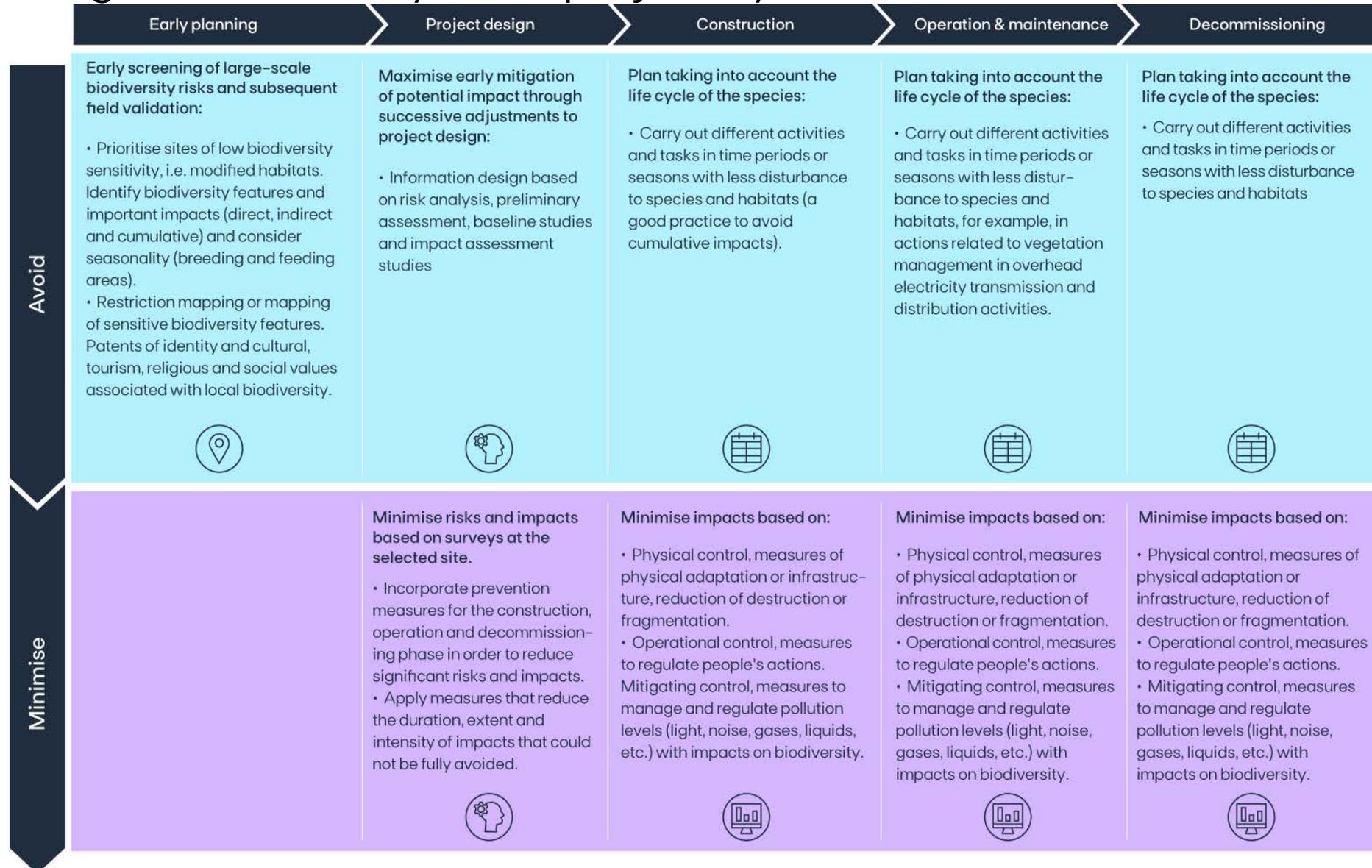
RUN-OF-WATER DAM Dam where there is no water storage for seasonal runoff, which reduces energy security, but has numerous advantages, more sustainable option, with social and environmental advantages.

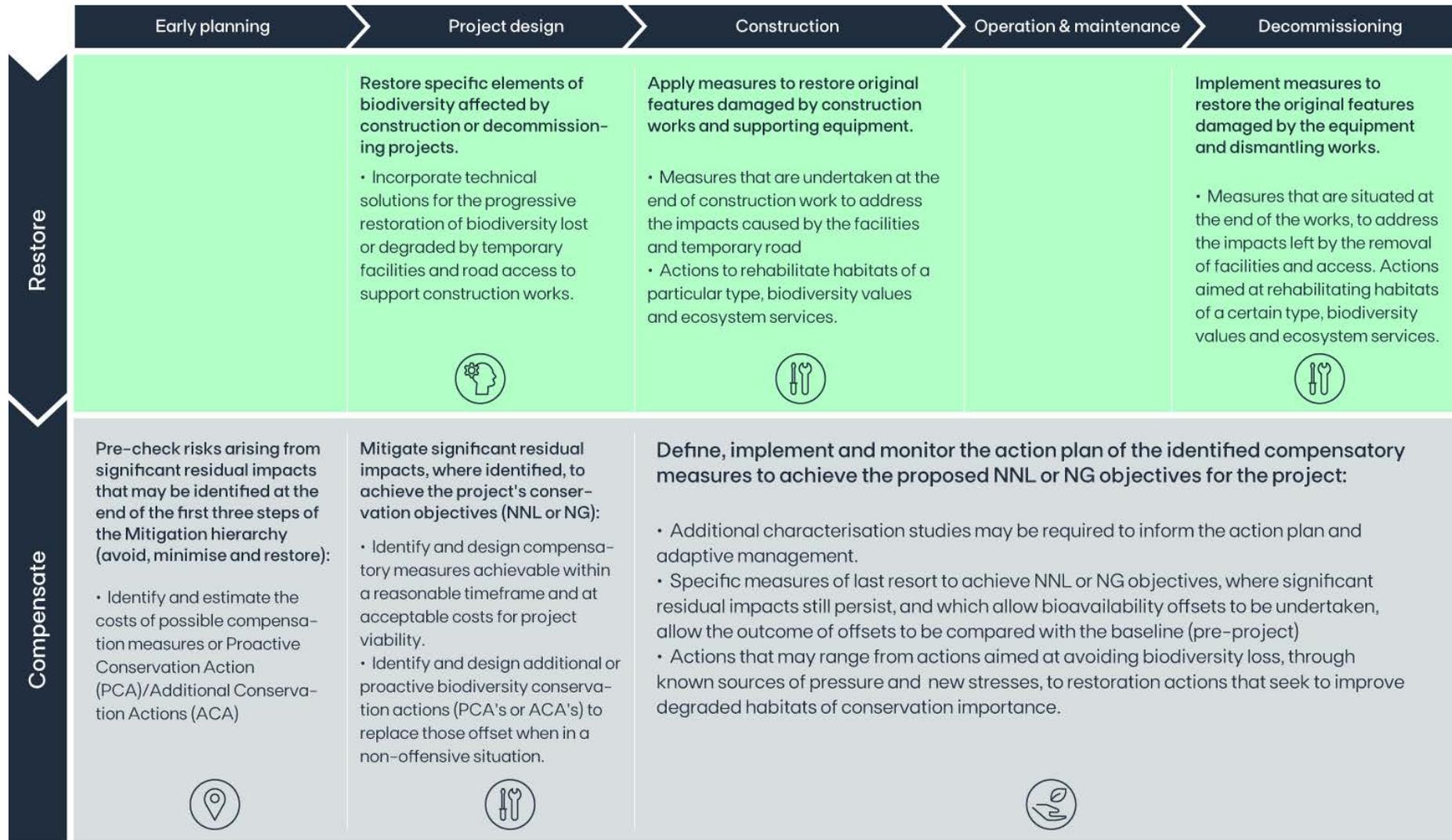
S

SIGNIFICANT IMPACTS ON BIODIVERSITY Substantial or potentially significant adverse change in the environment due to a project, identified to the extent possible by scientific and factual data.

SOCIAL LICENCE TO OPERATE Level of acceptance or approval continuously given to an organisation's activities or a project by the local community and other stakeholders. The components of the social licence include the perceptions of the community/stakeholders regarding the legitimacy and credibility of the organisation or the project, as well as the presence or absence of true trust in it.

Mitigation hierarchy in the project cycle





Legend

-  Site selection
-  Planning & design
-  Timeline
-  Control
-  Restoration
-  Biodiversity compensation/offsets

Fact Sheet**Edition**

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