Circular Economy Report

We Choose Earth

This Report

In 2023, EDP integrated the sustainability report with the annual report and accounts into a single report, which addresses the financial and non-financial performance of the EDP group for the calendar year 2022.

With the publication of a specific report for the Circular Economy, the intention is to complement the information reported in the Integrated Report, detailing the meaning and context of the Circular Economy for the group, the defined strategy, the management approach implemented, and the identified good practices.

The content of this document does not follow a specific standard. It presents the EDP group so that it can be consulted in isolation and focuses on four specific blocks:

- Major challenges that call for a Circular Economy;
- Global Sustainability strategy of the EDP group and commitments made in the context of a more Circular Economy;
- Defined action plan;
- Ongoing practices within the Group's companies.

Revision

EDP will report quarterly on the progress of performance indicators associated with this topic through its ESG Report and annually in the Integrated Report. The update of the contents of this document will only be made when considered relevant, either because there is a change in strategy or because there are new good practices that deserve to be highlighted.

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The critical rise of resource use

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The critical rise of resource use

The global picture

The linear economic model as we know it – extraction; production; disposal – causes great pressure on natural resources, leading to their scarcity and introducing serious risks for companies, namely regarding resource availability, supply interruptions and material price volatility.

Materials have been a key driver of human progress and prosperity over the past century, powering rising living standards and economic growth. However, this progress has come at a significant cost. The linear "take-make-waste" model of the modern industrial economy is not sustainable, and it is largely powered by fossil fuels.

According to The Circularity Gap Report 2021, material handling and use are responsible for 70% of global greenhouse gas emissions. The impacts of material extraction and use go far beyond emissions, however. They also drive over 90% of global biodiversity loss and water stress, threatening the planet's life support systems.

Despite these challenges, global material extraction and use are expected to double by 2050. This poses a significant risk to our planet's health and stability, and without effective material management strategies, we face the possibility of "total society collapse".

The Circular Economy presents a promising solution to this challenge. It goes beyond recycling and emphasises a systemic approach to smart material management. By doing more with less, using materials for longer, and substituting with sustainably managed regenerative materials, we can ensure the well-being of present and future generations while respecting the boundaries of our planet.

Transitioning to a Circular Economy is crucial for addressing the environmental and social challenges we face today. By rethinking our relationship with materials and embracing a more sustainable approach, we can build a more resilient and prosperous future for ourselves and the planet.

Therefore, Circular Economy presents a viable solution to the pressing issue of the unsustainable extraction and use of materials in the global economy. Unfortunately, the current global picture is critical, with the global economy being only 7.2% circular[1] and trending towards even lower levels due to increasing material extraction and use. While these practices have helped improve people's living standards, they have also put a strain on the environment, breaching its safe limits.

To tackle this problem, the adoption of a Circular Economy model can offer significant benefits. By embracing this approach, we can reduce our material usage by up to 30%, while still meeting people's needs and staying within the planet's safe limits. The Circularity Gap Report highlights how the Circular Economy can reverse the overshoot of planetary boundaries and lower the global need for material extraction, especially high-volume minerals and fossil fuels like coal.

It's crucial that we transform our relationship with materials and adopt a more sustainable model. The Circular Economy offers the potential to maximise benefits for people while minimising pressure on the planet's life support systems. By doing so, we can move towards a future where sustainable practices guide our economy, paving the way for a healthier and more resilient planet.

In a Circular Economy, the continuous incorporation of natural resources into production activities is promoted, reducing their extraction as much as possible and eliminating waste production. With this model, the value of the natural resources used is maximised and the impact on the environment is minimised.

The Circular Economic model makes it possible to support the transition to a greener economy, ensuring economic development, improving living and employment conditions and regenerating natural capital. This model thus represents an opportunity for the economy and for companies, valued by the European Commission[2] at more than 4 trillion euros.

[1] According to The Circularity Gap Report 2023, from Circle Economy

[2] Circular Economy Action Plan, European Commission

How can circularity support the decarbonisation path

Decarbonisation and Circular Economy are two separate issues that have converged rapidly due to their complementary nature. Circular Economy can play a significant role in supporting the energy transition and decarbonisation efforts globally. By embracing Circular Economy principles, businesses can optimise resource use, minimise waste, and reduce the carbon footprint of products and services.

Simply relying on renewable energy and improving efficiency is not enough to decarbonise the economic system. The entire life cycle of products and processes must be rethought, including extraction, production, use, and closure.

Circular Economy approaches can enable a more efficient use of energy and resources. By optimising the life cycle of products and services, businesses can reduce the amount of energy and raw materials needed to produce and deliver them. For example, by adopting remanufacturing and recycling practices, companies can recover valuable materials from end-of-life products and use them to create new products, reducing the need for virgin re-sources.

Circularity can also support the transition to renewable energy sources. Renewable energy technologies such as wind and solar require significant amounts of materials, including rare earth metals, which are often sourced from unsustainable or environmentally damaging mines. Circular Economy practices such as recycling and reuse can help reduce the need for virgin materials, creating a more sustainable supply chain for renewable energy technologies.

Additionally, Circular Economy can facilitate the electrification of transport and heating, which are major sources of greenhouse gas emissions. By adopting Circular Economy principles, businesses can reduce the environmental impact of transportation and heating systems by increasing energy efficiency, using renewable energy sources, and adopting circular business models such as car sharing or district heating.

Circular models can help create new economic opportunities while supporting decarbonisation goals. By embracing Circular Economy principles, businesses can design new products and services that are more sustainable and resource-efficient, reducing costs and improving their competitiveness. Circular Economy can also create new job opportunities in fields such as remanufacturing, recycling, and repair, contributing to sustainable economic growth.

Therefore, Circular Economy offers a range of opportunities to support the energy transition and decarbonisation efforts. By optimising resource use, reducing waste, and adopting circular business models, businesses and governments can create a more sustainable and resilient economy, while reducing greenhouse gas emissions and combating climate change.

Who we are

2

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.

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

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.

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 tCO_2/GWh emissions
- 144 thousand TJ energy consumption
- Waste and water management

Impacts

- Minimizing financial risks
- Debt reduction

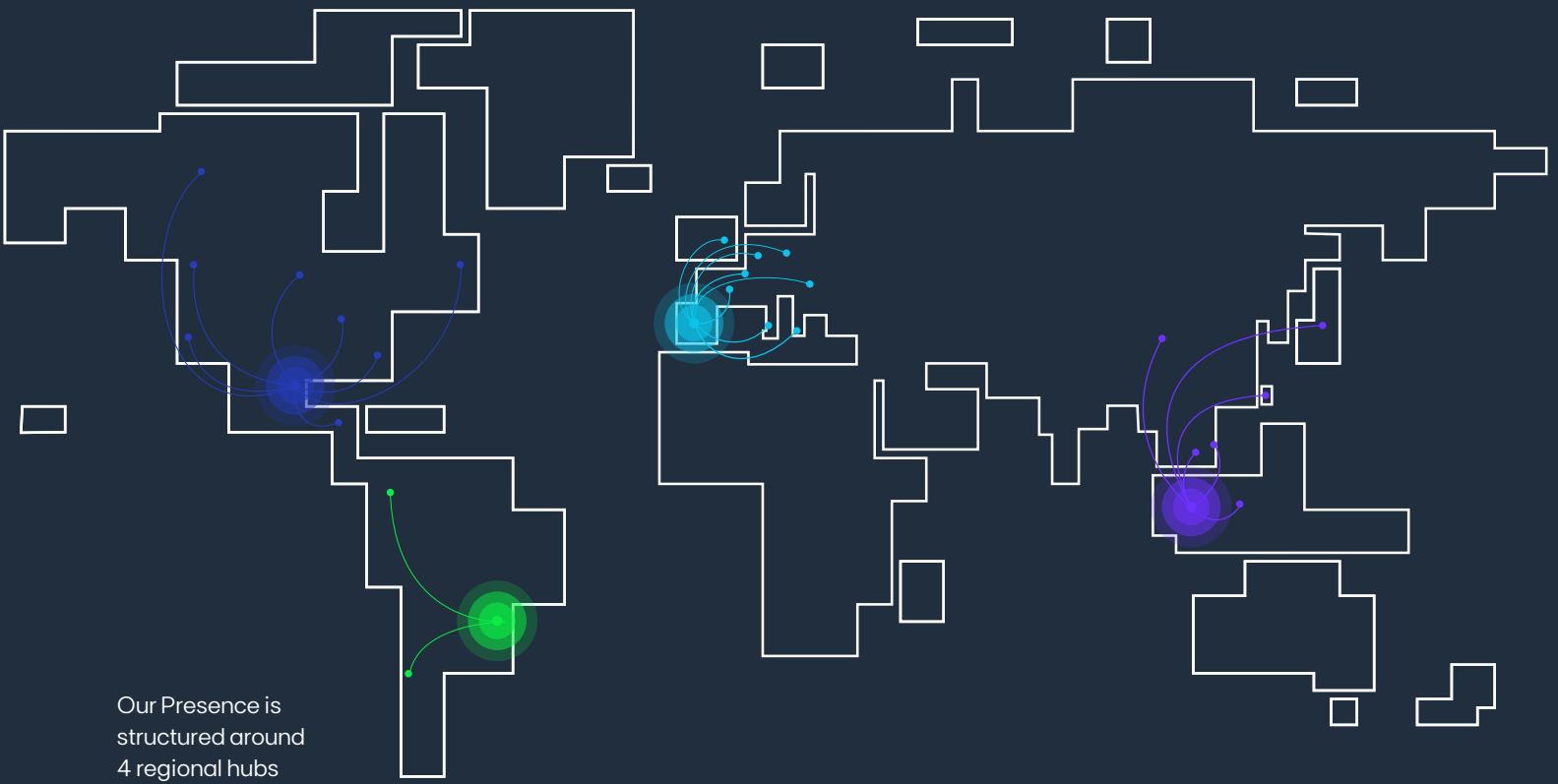
- Ensuring the quality and efficiency of energy supply
- Promotion of safety of facilities and equipment

- 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



Our Presence is structured around 4 regional hubs

Europe	Lisbon, Oporto, Oviedo, Madrid		
	11,184	5,540	
	285	8,311	
APAC	Singapore		
	726	531	
North America	Houston		
	7,242	1,041	
South America	São Paulo		
	3,066	3,586	
	98	3,328	

Solar Capacity (MW) · Hydro Capacity (MW) · Wind Capacity (MW) · Networks ('000 km) · Clients ('000 #) · Employees (#) · Main offices

EDP in the World

45 TWh

74% renewable energy generation

13,211 employees

Protect our planet

3

Protect our planet

ESG ambition

Accelerating renewable energy, decarbonising operations, empowering communities, protecting the planet, and joining partners for a profound transformation driven by a strong ESG culture. This ambition is reflected in EDP's new ESG Framework, which establishes the sustainability goals for the 23-26 business plan period, within a level of ambition set for 2030, as its clear contribution to sustainable development.

Regarding the PLANET strategic axis, the group commits to protecting the planet, contributing to its regeneration, aiming **to have more than 90% of all its waste recovered throughout the entire value chain by 2030**. EDP does so by recognising the environment as a strategic management element, acting towards pollution prevention; mitigation of impacts and dependencies of its activity; and assuming proactive value-generating management as a socially responsible company, to better manage the effects of its activity on nature.

Therefore, through its **Environmental Policy**, EDP assumes a set of commitments that guarantee the implementation and maintenance of environmental management systems, certified according to ISO 14001:2015 by accredited external entities.

In addition to the Environmental Policy, which highlights the promotion of the Circular Economy through complementary general and specific commitments, EDP also assumes other specific commitments. All commitments aim to be extended to the supply chain (suppliers and subcontractors), through EDP's **Sustainable Procurement Policy** which, whenever possible, considers reference to policies consistent with those established by society, particularly in the environmental dimension.

Decarbonize for a climate-positive world

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

Circular Economy for EDP

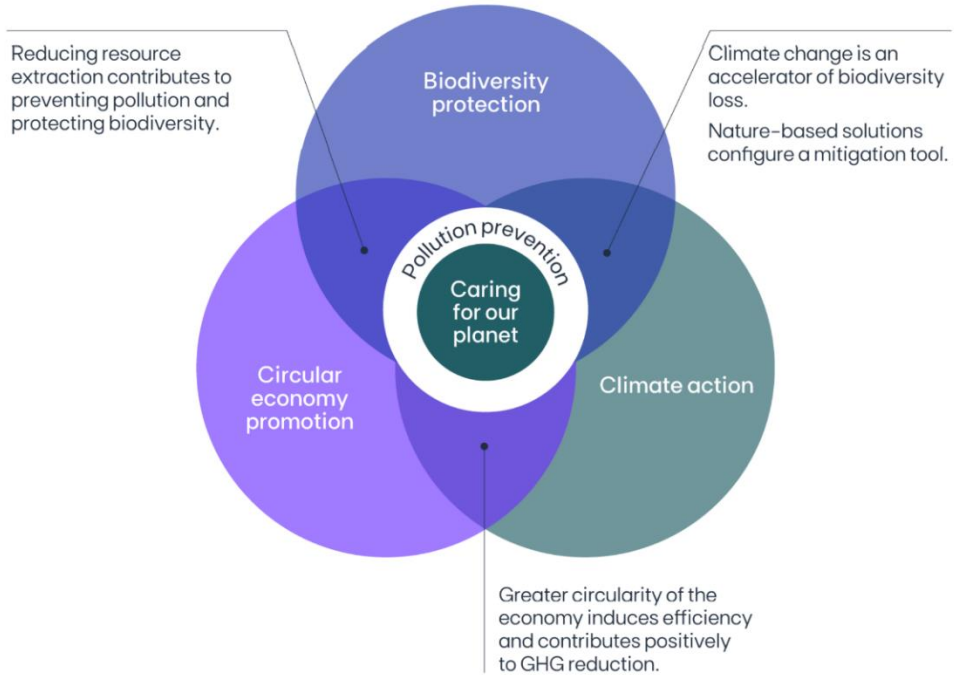
The **EDP Group's environmental policy** establishes a set of general principles and commitments for environmental protection, as well as a set of complementary specific commitments, including those for the promotion of the Circular Economy.

- Promoting efficient use of natural resources in its activities, wherever possible, within the framework of a life-cycle analysis, in particular:
    - Minimise the use of natural resources necessary to properly carry out its activities;
    - Optimise and efficiently manage internal products and services, promoting a Circular Economy for our customers;
    - Maximise the recovery of waste and its reintroduction into the economy as by-products;
- Pay special attention to the water resource, promoting its sustainable management, either by minimising its consumption or by mitigating the impacts on its quality.

Additionally, Circular Economy approach is extended beyond EDP's activities throughout its value chain, promoting efficiency, reducing resource consumption, and contributing to the reduction of greenhouse gas emissions.

The commitments made by EDP to promote Circular Economy actively contribute to the Sustainable Development Goals (SDGs) established by the United Nations' 2030 Agenda, particularly to **SDG 12 – Responsible Consumption and Production, and SDG 8 – Decent Work and Economic Growth**.

PROTECT THE PLANET



Circular Economy commitments contributing to ESG ambition

Circular Economy must complement the energy transition process and provide a circular perspective to all sectors to effectively combat climate change. The circularity of a product must include both its material and energy elements, and a 'circularity by design' approach must consider both.

While renewable energy sources and electrification are vital first steps in transitioning to zero-emission models, the significant growth of renewable energy technologies poses challenges in material supply, production, and end-of-life management. The growth of these technologies must be established as part of a Circular Economy approach to prevent new environmental problems and boost job creation and economic development. The increasing use of renewable energy sources will also lead to the decommissioning of thermoelectric plants, which will require a Circular Economy strategy to address the large volume of land, as-sets, and materials involved.

The concept of Circular Economy is quite broad and assumes specificities according to each activity sector. Therefore, EDP has clearly defined the scope of the Circular Economy for its activity.

For EDP Circular Economy is an economic model that allows the company to optimise the consumption and use of resources and equipment necessary to guarantee the operation and its products and services, minimising the loss of resources, materials and energy.

The implementation of this model is only possible through a systemic approach, in which the company influences its value chain for the valorisation of resources and, at the same time, promotes the creation of new business models capable of leveraging circularity in the downstream, with the aim of:

- Identify opportunities: more efficiency, new ways of managing resources, new products, new services;
- Manage emerging regulatory risk;
- Communicate good practices aligning them with the growing expectations of society.

EDP'S GOALS AND TARGETS FOR CIRCULAR ECONOMY FOR 2025

In the **new Business Plan 2023-2026**, EDP added the commitment of achieving 90% of total recovered waste in 2026 and more that 90% in 2030, including construction, operational and dismantling phases.

EDP's Circular Economy Strategy

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EDP's Circular Economy Strategy

EDP group companies already implement some Circular Economy practices, however, the growing external relevance of the topic (ex. European Green Deal, Taxonomy for Sustainable Finance) and the guidelines of international institutions and regulation, make the implementation of a corporate strategy urgent that reinforces internal training in this field and facilitates the implementation of action plans capable of demonstrating continuous proactiveness in this area.

Therefore, in March 2021, EDP approved its Circular Economy group wide strategy: **"Circular Economy for a Regenerative Business"**, aiming to build a global vision that can guide circularity practices across all Business Units.

EDP's Circular Economy strategy integrates 6 Guiding Principles; 1 Vision; 7 Axes of Action and each BU develops their operational Action Plan.

Guiding principles

1. **Adopt a systemic approach**

From a perspective where the entire value chain is involved and has a role in managing the externalities arising from their activity.

2. **Build alliances**

Build structural alliances with different stakeholders, seeking to promote the transition to more circular models through collaboration.

3. **Optimise resource utilisation**

Promote the extension of the lifespan of resources so that they remain in the production cycle for as long as possible.

4. **Promote innovation**

Promote the creation of innovative solutions in new business models that promote circularity in products and services, as well as in production processes and materials used.

5. **Promote efficiency in the value chain**

Encourage the efficient use of resources, seeking solutions to reduce their consumption, and working with the value chain to build new solutions.

6. **Ensure transparent communication**

Commit to communicating the circularity of products and services provided in a transparent manner to stakeholders, also promoting awareness in the value chain.

Vision

Circular Economy is a system that aims to minimise waste and reduce the consumption of finite resources. EDP's vision for a more Circular Economy is based on 3 pillars:

1. Reduction of inputs

One of the key strategies in achieving a more circular business is reducing inputs, or the amount of new materials and resources needed for the company activity. In traditional linear economies, products are made, used, and discarded, leading to a continuous flow of new resources into the economy. However, in a Circular Economy, the focus shifts towards using existing resources in a more sustainable and efficient way.

Reducing inputs can be achieved through various means, such as designing products for longevity, durability, and reparability. For EDP, this means procuring products / equipment's that can be used for longer periods and repaired easily when damaged, reducing the need for new products to be manufactured. Another way to reduce inputs is through the use of recycled and secondary materials. Recycling is an important part of the Circular Economy, as it allows materials to be reused and repurposed, rather than discarded. By using recycled materials, the demand for new resources is reduced, and the amount of waste generated is minimised.

Circular business models such as leasing, sharing, and product-as-a-service also contribute to the reduction of inputs. In these models, the focus is on maximising the use of products rather than owning them outright.

2. Optimisation of resources' use

The goal is to use resources in a way that maximises their value and minimises waste. At EDP's operations, we way at optimising resource use, namely through the use of closed-loop systems. Closed-loop systems involve using resources in a way that allows them to be reused and repurposed, rather than discarded. For example, a closed-loop system used at EDP's operation involves using recycled materials or promoting equipment's' durability and reparability, through predictive maintenance, extending the life of products. This approach minimises waste and maximises the use of resources.

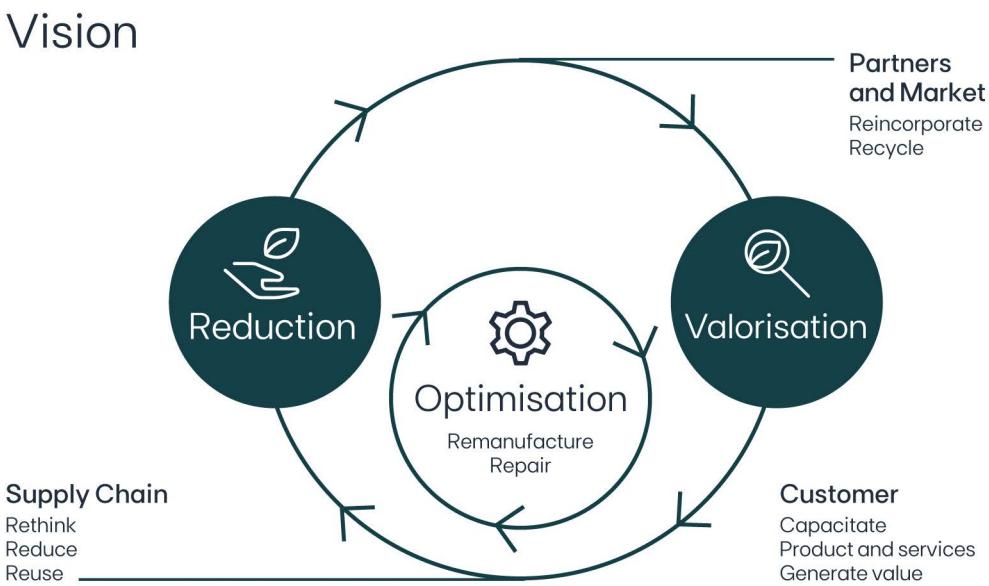
Optimising the use of resources also involves reducing waste through measures such as waste reduction, reuse, and recycling.

3. Valorisation of outputs

One way to valorise outputs is through recycling, by taking materials that have reached the end of their life cycle and using them to create new products. This helps to reduce the demand for new resources and minimise waste. Another way to valorise outputs is through upcycling. Upcycling involves taking materials that would otherwise be discarded and transforming them into higher value products. Upcycling not only helps to minimise waste but also creates new economic opportunities and adds value to materials that might otherwise be discarded.

Valorising outputs also involves designing products and services with their end of life in mind. By designing products for durability, reparability, and recyclability, we can extend their useful life and create more value from them.

Circular Economy Strategy



EDP works with its business partners to find innovative solutions for rethink, reduce and reuse resources, and also reincorporate and recycle the materials at their end-of-life.

The seven EDP's axes of action

Efficiency in the use of resources and materials

Promote the **reduction of inputs** of resources and materials and reduction of waste outputs.

Product longevity

Promote solutions that **extend the product lifecycle**, including modular design solutions, which allow the product to be easily disassembled and their components replaced, remanufactured, repaired, updated.

Digitalisation

Integrate digital solutions that through technology and data allow **dematerializing processes** and reducing the consumption of materials and resources, but also supporting the construction of new business models (product as a service).

Resource valorisation

Promote the **valorization of waste materials** at the end of life, focusing on their "second life" after the original purpose, namely through the creation of symbiosis with other sectors of activity, recycling, energy recovery, etc.

New business models

Promote the construction of **new business models** that allow the introduction of different circularity levels in the products and services provided to the customer, such as the life cycle extension, models as a service, efficiency, sharing, etc.

Circular supplies

Promote circularity practices, such as: replacing materials and products with longer-lasting, recycled, reused ones; **labelling of products identifying their circularity**; but also the inclusion of criteria in purchases.

Influence and awareness

Ensure the **company's responsibility for the products, materials and assets** it produces and manages/uses. Responsibility to influence the value chain to leverage the circularity in its products, services and choices.

Roadmap

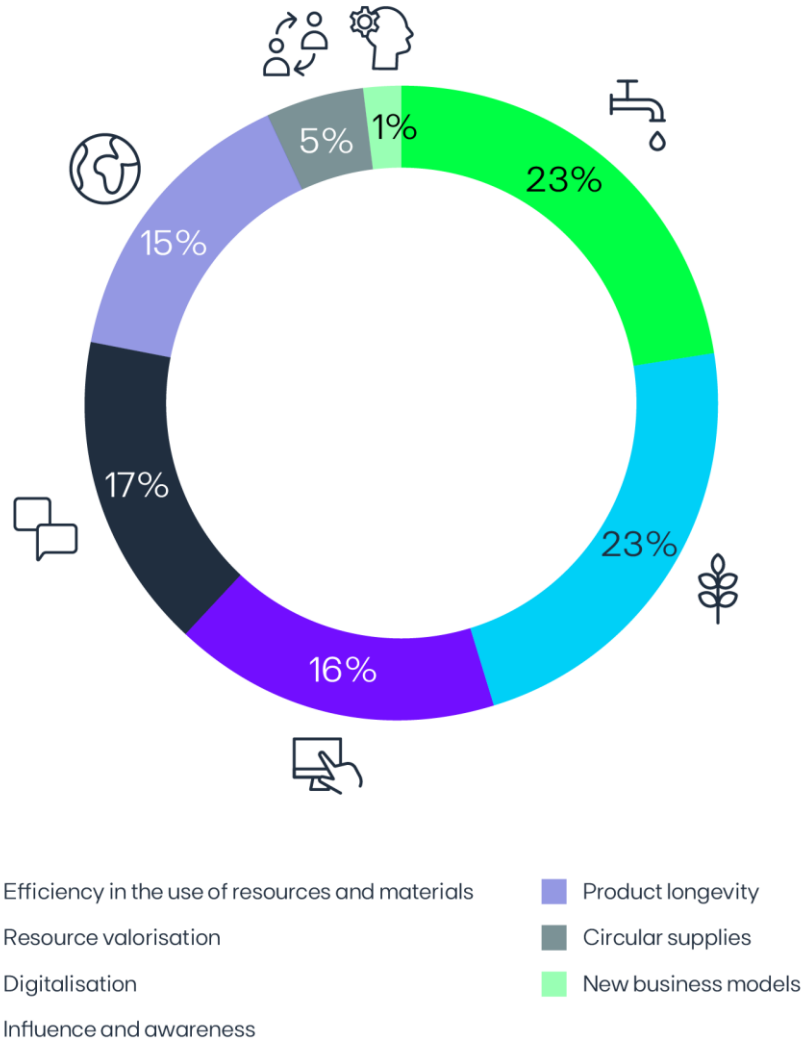
With the aim of implementing the Circular Economy strategy throughout the group, EDP has created a cross-cutting program for circularity – **Close the Loop | promote Circular Economy for a regenerative business** – which establishes a roadmap until 2025. The Close the Loop program aims to promote the implementation of a Circular Economy, optimizing the consumption and use of resources, equipment, products, and services, while minimizing the loss of materials and energy. This program is structured into 4 workstreams, for which working groups, composed of different Business Units, have been formed.

1. Monitoring – Enable BU's to measure circularity of its projects, activities, products and services, identify gaps and establish measures to improve circularity;
2. Suppliers – Establish a set of Circularity improvement recommendations for suppliers and specific criteria to integrate in EDP purchases (includes EDP, LCA, etc.);
3. Training – Design and implement a training program for EDP specific functions;
4. Wind and Solar – Establish Circular Economy guidelines to implement in all life-cycle stages of EDP renewable energy projects (from project design to dismantlement).

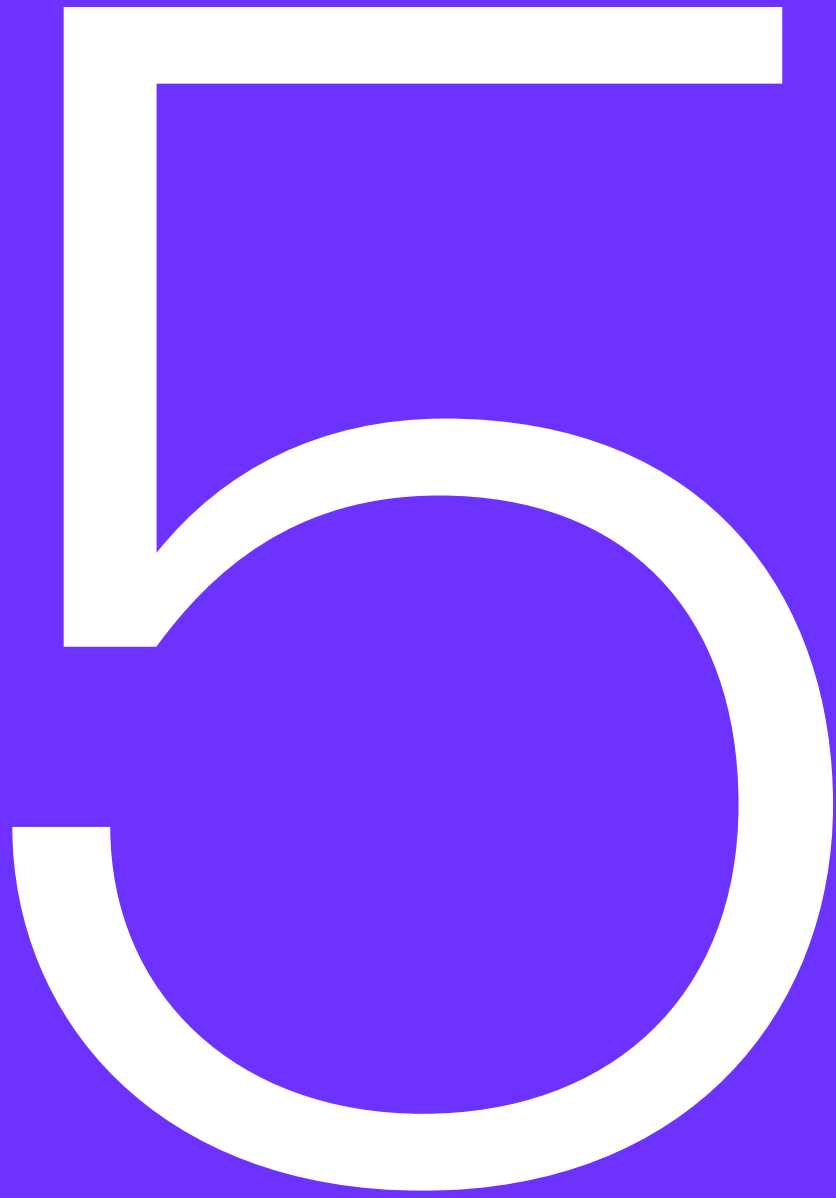
	MAIN OUTPUT	KPI
Monitoring	Test of the Circularity tool by all BU and evaluation	% of circular economy initiatives measured
Suppliers	Set of recommendations for circularity improvement in EDP purchases	% of purchases with circularity criteria
Training	Circularity capacity building for EDP strategic functions across the Group	% of employees with strategic functions trained
Wind and Solar	Implement circularity practices in wind and solar projects	% of projects with circularity practices

This program integrates over a hundred initiatives from all Business Units, which are distributed across each of the action axes of the Group's Circular Economy strategy.

CIRCULAR ECONOMY INITIATIVES PER STRATEGIC AXES OF ACTION



EDP's Circularity Best Practices



EDP's Circularity Best Practices

Focus Areas

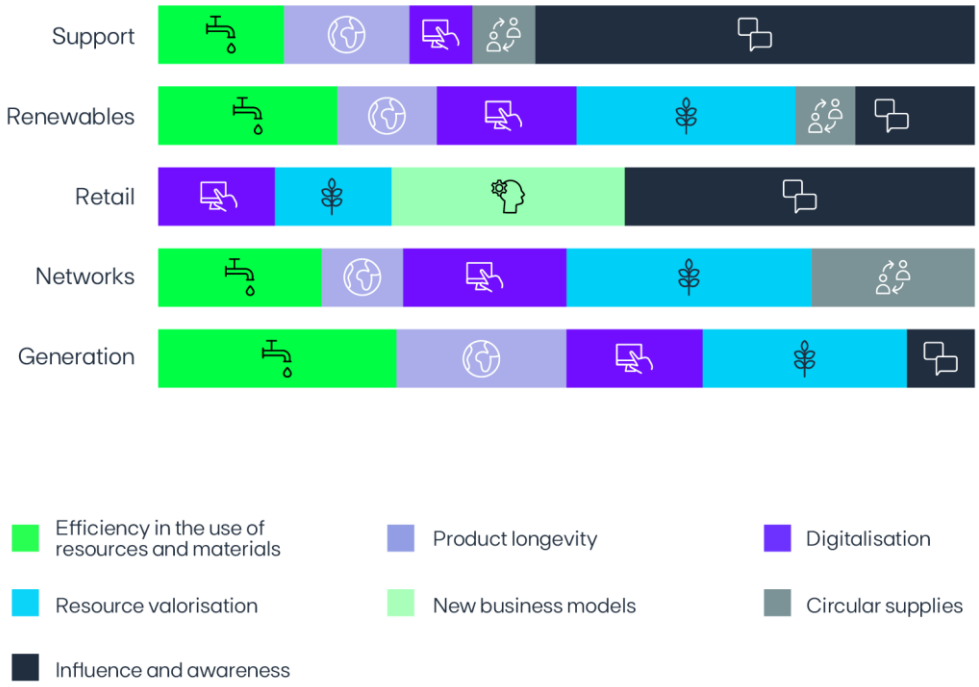
The EDP group is committed to providing innovative and competitive solutions by ensuring coherence across all its businesses and ecosystems. Its main business areas are power generation, infrastructure and network, customers, and suppliers.

- In **power generation**, the group aims to reappraise renewable energy supply chains throughout their value chain and manage thermoelectric assets until their decommissioning.
- In **infrastructure and network**, the group aims to redefine the value chain of major assets through "Circularity by Design" and use digitalisation to accelerate the role of the network as a platform.
- In **end customers**, the group aims to facilitate their transition to circularity through new products, services, and consultancy services.
- In **suppliers** the group aims to guide the entire supply chain towards circularity to support and leverage the entire supply chain towards circularity.

All other areas, from digital infrastructures to trading to office management, are also actively involved.

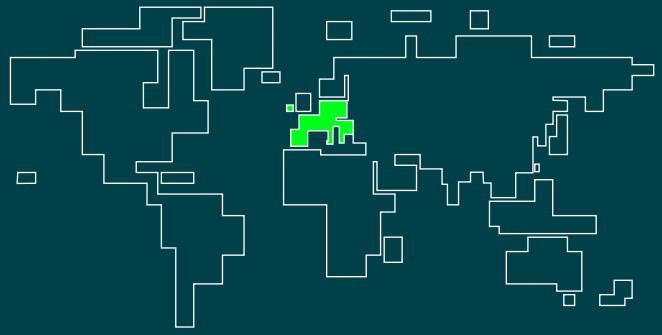
Achieving high levels of circularity is only possible through a collaborative and systemic approach. Therefore, EDP is collaborating with international organisations and platforms, as well as in its main countries of operation, including European countries, the United States, and Brazil. The group collaborates with institutions, companies, NGO, universities, and other stakeholders to increase knowledge and understanding of the Circular Economy and support the system transition.

CIRCULARITY AXES PER EDP'S ACTIVITY DESCRIPTION



Best Practices

Floating Solar Power Plant in Alqueva



BU involved

EDP Produção
Alqueva, Portugal

Project status

Implemented

Initiative description

Integration of cork composites in the floaters of the photovoltaic Alqueva project.

The introduction of cork composites, instead of conventional virgin plastic, enabled a partial substitution of non-renewable material with a local and natural one.

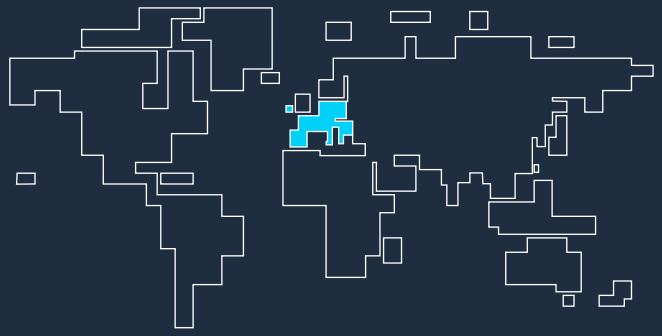
Cork composites work as a carbon sink, abating part of the GHG emissions from the non-renewable materials used, and more favorable at biodiversity level. As part of the project, a life cycle analysis (LCA) was conducted to specifically assess the impact of these types of floating photovoltaic projects versus projects using conventional floaters.

Circular Economy axe of action

Efficiency in the use of resources and materials

Best Practices

Ecodesign in transformers for networks



BU involved

E-REDES
Portugal

Project status

Implemented

Initiative description

According to the European Commission's Eco design Directive, of July 1st, 2021, the transformers market in the EU has been converted to manufacture more efficient models and reduce lifecycle costs. On this guideline, "Tier 1" transformers will cease to be purchased. Their replacement with "Tier 2" transformers will reduce energy losses by 10% compared to "Tier 1".

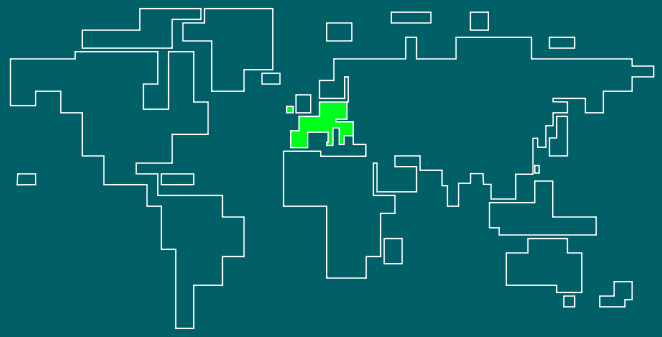
With the implementation of this Directive, the suppliers are incentivised to innovate towards adopting more sustainable practices and contributing to the Circular Economy.

Circular Economy axe of action

Efficiency in the use of resources and materials

Best Practices

Buildings' reconversion in GreenH$_2$ hydrogen project



BU involved

EDP Generation PT, H2 BU
Sines, Portugal

Project status

Rollout

Initiative description

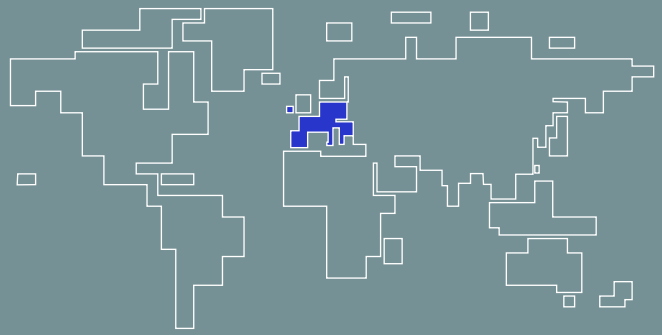
Reuse of existing buildings and infrastructures of the Sines power plant in the Green H2 Atlantic hydrogen project, to increase their durability and prevent the production of waste. Namely through reuse of the water intake, electrochlorination building, group 4 inlet water duct, group 3 and 4 rejection channel, jetties, water treatment system building, demineralised water tanks, cable tunnel between the plant and the water intake, buried networks, accesses, etc.

Circular Economy axe of action

Product longevity
New business models

Best Practices

Transformer reconditioning and use of predictive models



BU involved

E-REDES
Portugal

Project status

Rollout

Initiative description

The remote monitoring in real time of the transformers allows increasing the response capacity and service quality, and simultaneously increasing the lifetime of resources through dematerialisation of the processes.

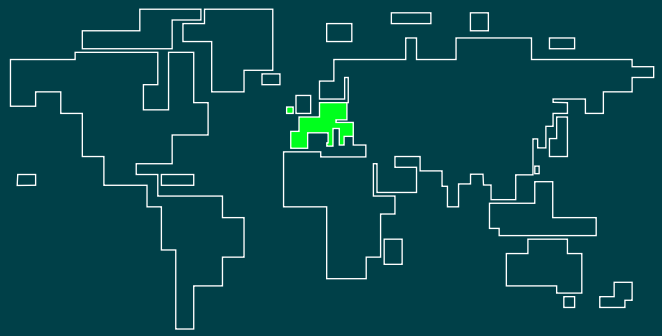
A more proactive approach makes it possible to better program or even anticipate the need for intervention in transformers, contributing to better control of costs. This proves to be crucial to prevent environmental hazards and contributes to an improvement in the circular use efficiency of this equipment.

Circular Economy axe of action

Digitalisation
Product longevity

Best Practices

Wood valorisation from vegetation cuts



Initiative description

The pilot project aims to develop an ecological conservation and valorisation action through the use of dead wood material from E-REDES vegetation management lanes (HV/MV). The main goal is to create specific structures to support biodiversity, in collaboration with local associations.

Insects and amphibians including protected species, such as the European stag beetle (Lucanus cervus), inhabit the dead wood structures, helping to return nutrients to the soil and completing the carbon fixation circle.

BU involved

E-REDES
Portugal

Project status

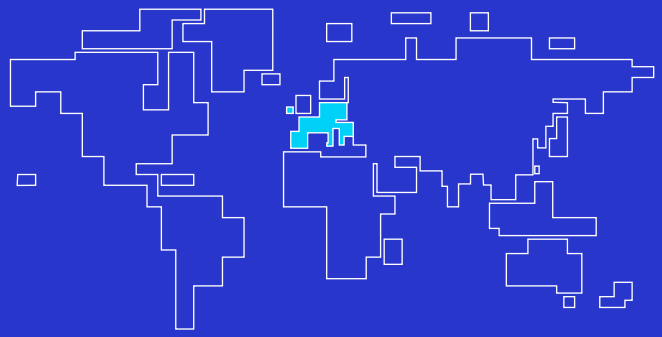
Pilot project

Circular Economy axe of action

Resource valorisation

Best Practices

Solar energy as a Service



Initiative description

Development of a new business model for solar energy units, using As a Service approach in the management of the panels by EDP.

This business model contributes to improve the panels' maintenance and, therefore, to extend their useful lifetime.

In the other hand when the customer no longer needs the service, the units can be reallocated and reused by other customers.

BU involved

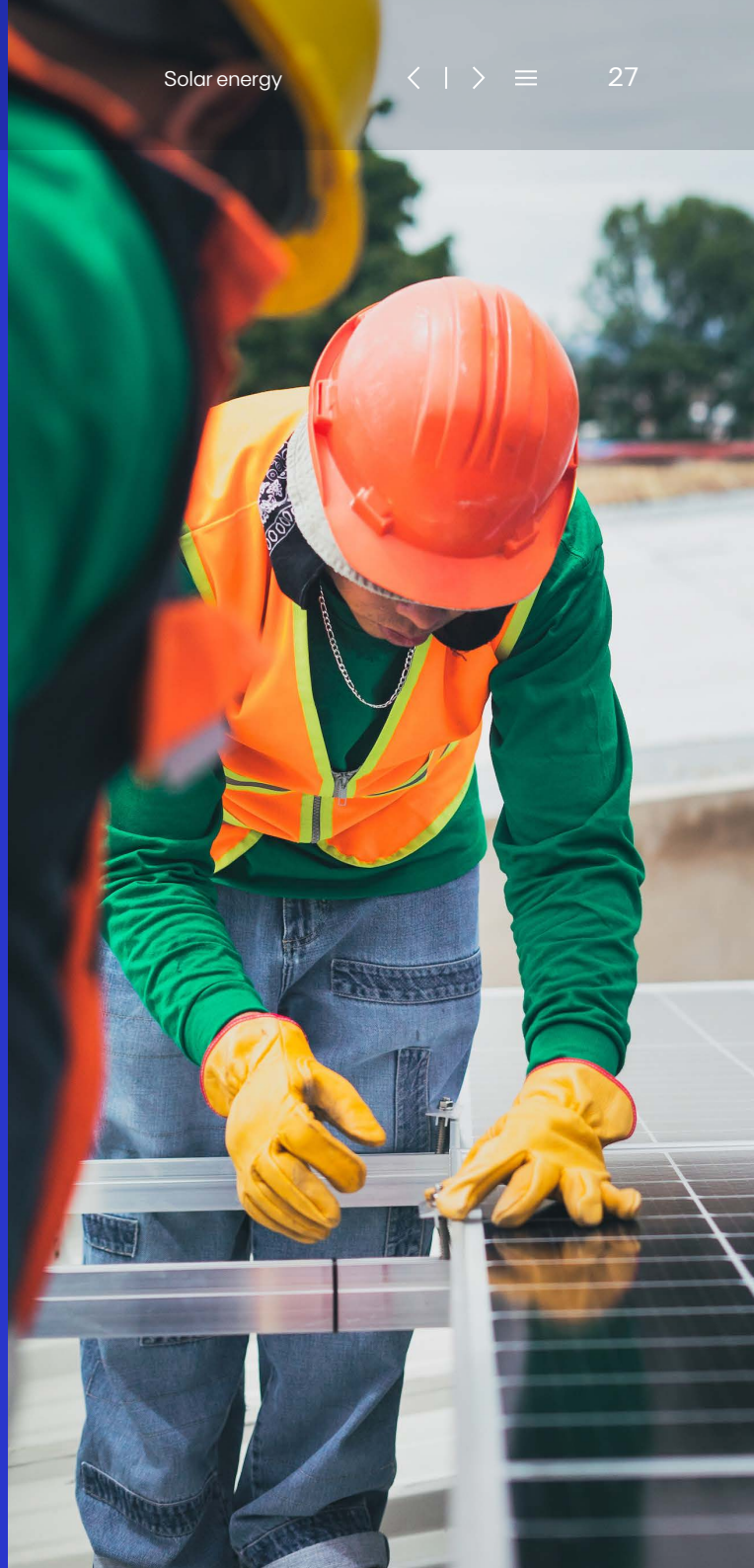
EDP Comercial
EDP España
Iberian Peninsula

Project status

Scaling up

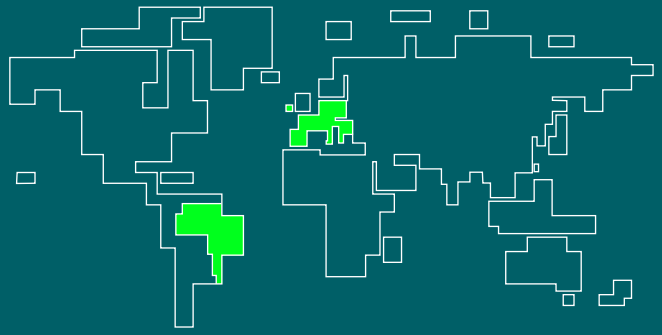
Circular Economy axe of action

New business models
Digitalisation



Best Practices

ESG integration in procurement



Initiative description

Align EDP's ambition with the main ESG Circular Economy trends, aiming to integrate those requirements in future procurement processes. Therefore, a benchmark was conducted to collect the best practices in the market to outline EDP's future path in this area.

As a fundamental step in this process, UPG promoted the awareness and training of the procurement professionals. The main goal is to promote the integration of Circular Economy requirements in the Business Units' procurement processes.

BU involved

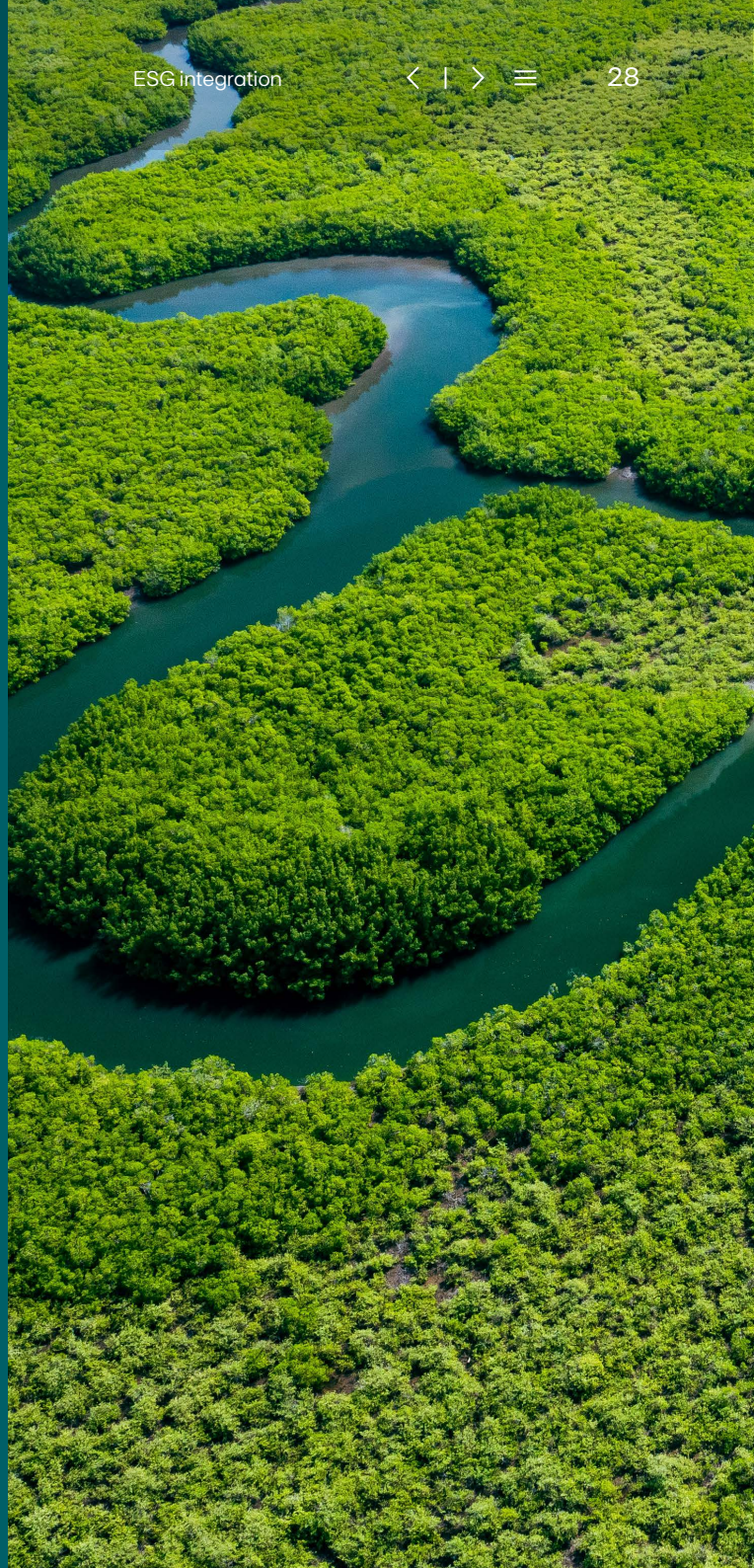
EDP Global Solutions (UPG)
Iberian Peninsula & Brazil

Project status

Scaling up

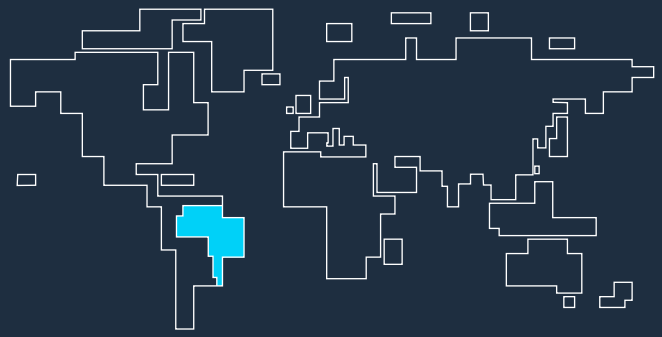
Circular Economy axe of action

Circular supplies
Influence and awareness



Best Practices

"Circulando" training program



BU involved

EDP Brasil
Brazil

Project status

Rollout

Initiative description

This initiative aims to internalise the concept of Circular Economy in EDP, through an internal training program focusing on the development of mindset and skills. It includes 3 axes:

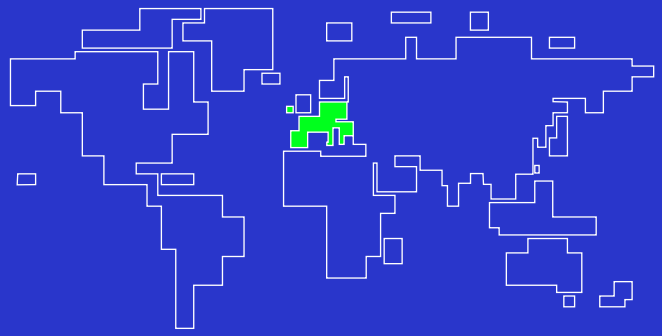
- Introduction to Circular Economy, for all employees, with the goal of internalising the concept;
- Short immersive courses on specific Circular Economy topics;
- Circular Economy Journeys, developing mentoring directed towards the development of circularity cases in the company's businesses.

Circular Economy axe of action

Influence and awareness

Best Practices

"Circumetrics" Platform



BU involved

EDP España
Spain

Project status

Scaling up

Initiative description

This platform developed by EDP Spain aims to evaluate the circularity level of business units' initiatives, prioritizing those that contribute most to EDP's circularity and sustainability.

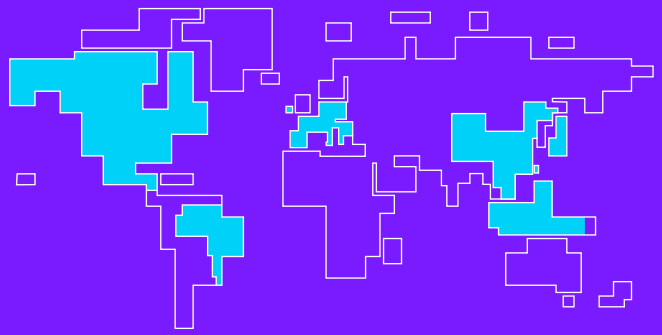
Based on the EDP's Circular Economy strategy, it evaluates the benefits of the projects ,regarding both efficiency in resource consumption and reduction the natural capital impact. This evaluation is translated into a circularity label, ranging from A to D. Therefore, the tool also contributes to raising awareness among users.

Circular Economy axe of action

Influence and awareness

Best Practices

Guidelines for Renewables' end of life projects



BU involved

EDP Renewables
All EDP Geographies

Project status

Rollout

Initiative description

Regulatory and financial market pressure makes it necessary to integrate circularity criteria in the Company's projects and processes. The wind sector is promoting ambitious targets, such as the wind industry's statement to ban the landfilling of blades by 2025. In addition, other sustainability regulations such as the EU taxonomy and reporting frameworks set out requirements, including circularity, for companies to comply with.

Therefore, EDP and EDPR, developed a set of guidelines for end-of-life renewable energy projects.

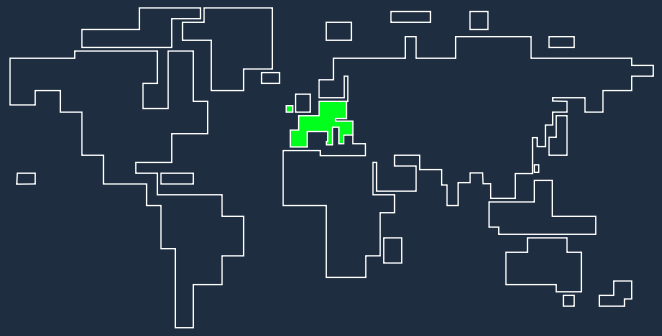
The aim of this initiative is to set a framework for the development and/or participation in projects to promote innovative solutions for the main challenges in waste recovery on wind or solar projects.

Circular Economy axe of action

Resource valorisation
Circular supplies

Best Practices

ReCircular: Manual for coal power plants decommissioning



BU involved

EDP Generation PT & ES
Iberian Peninsula

Project status

Rollout

Initiative description

Aligned with EDP's ambition of being Coal Free, the company identified the need to set a framework to guide the decommissioning processes of coal power plants.

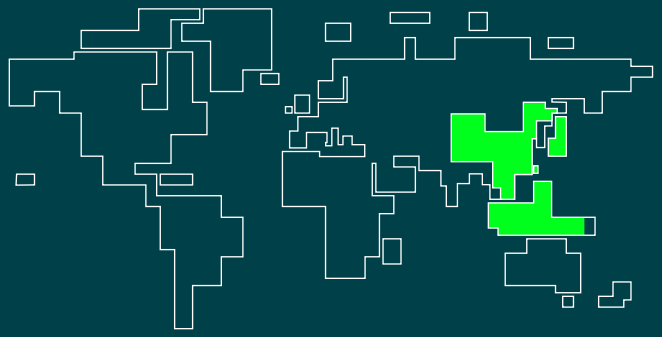
This framework aims to support the decommissioning processes of coal power plants or other types, in order to make these processes more circular, systematizing a set of best practices to be followed, accompanied, whenever possible, by metrics to support the management of the process.

Circular Economy axe of action

Resource valorisation
Product longevity

Best Practices

Lithium-Ion batteries closed loop technology



Initiative description

EDP Ventures reinforced its investment in the start up "Green Li-ion" ; a Singapore based company that developed a technology designed to rejuvenate Lithium-Ion batteries pioneering a technology that immediately produces re-usable Battery Grade Cathode materials from black mass.

Li-ion promotes a closed loop process to ensure that batteries are recovered and completely converted to new life.

BU involved

EDP Inovação
Singapore

Project status

Rollout

Circular Economy axe of action

Product longevity
Efficiency in the use of resources and materials

Annex: Acronyms & Glossary

List of acronyms and abbreviations

E

EPD – Environmental Product Declaration

ESG – Environmental, Social, Governance

G

GHG – Greenhouse Gas

GO – Guarantee of Origin

I

IEA - International Energy Agency

IPCC - Intergovernmental Panel on Climate Change

L

LCA – Life Cycle Assessment

R

RCP – Representative Concentration Pathway

REC – Renewable Energy Certificate

R&D – Research and Development

S

SASB - Sustainability Accounting Standards Board

SDG – Sustainable Development Goals

SDS – Sustainable Development Scenario

SFDR - Sustainable Finance Disclosure Regulation

Glossary: Concepts and definitions

B

Biodiversity loss – Reduction of any aspect of biological diversity (i.e. diversity at the genetic, species and ecosystem levels) is lost in a particular area through death (including extinction), destruction or manual removal; it can refer to many scales, from global extinctions to population extinctions, resulting in decreased total diversity at the same scale.

C

CAPEX (Capital Expenditure) - Capex includes increases in Property, Plant and Equipment and in Intangible Assets, excluding CO2 licenses and Green certificates, net of increases in Government grants, Customer's contributions for investment and Sales of properties in the period.

Circular Economy – Is a model that allows the company to optimize the consumption and use of resources and equipment necessary to ensure its operation and its products and services, while minimizing the loss of resources, materials, and energy. The implementation of this model is only possible through a systemic approach, where the company influences its value chain towards resource valorisation and, at the same time, promotes the creation of new business models capable of leveraging circularity downstream.

Climate-related risks - risks arising from the effects of climate change. According to the TCFD taxonomy, they can be physical risks or transition risks.

Critical Raw Materials - those raw materials that are economically and strategically important for the economy but have a high-risk associated with their supply.

E

Ecodesign – The integration of environmental aspects into the product development process, by balancing ecological and economic requirements. Eco-design considers environmental aspects at all stages of the product development process, striving for products which make the lowest possible environmental impact throughout the product life cycle.

G

Greenhouse Gases (GHG) - For the purposes of GHG inventories, the following gases are considered: Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur Hexafluoride (SF_6).

H

Hazardous waste – Any waste or combination of wastes with the potential to damage human health, living organisms or the environment. Hazardous wastes usually require special handling and disposal procedures which are regulated by national and international laws.

L

Life Cycle Assessment - Is a process of evaluating the effects that a product has on the environment over the entire period of its life thereby increasing resource-use efficiency and decreasing liabilities. It can be used to study the environmental impact of either a product or the function the product is designed to perform. LCA is commonly referred to as a "cradle-to-grave" analysis. LCA's key elements are: (1) identify and quantify the environmental loads involved; e.g. the energy and raw materials consumed, the emissions and wastes generated; (2) evaluate the potential environmental impacts of these loads; and (3) assess the options available for reducing these environmental impacts.

N

Net-Zero emissions - When anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period (https://www.ipcc.ch). For an organisation, it refers to the state achieved when an organisation's GHG emissions are reduced according to a science-based trajectory, and any remaining emissions that cannot be mitigated are fully neutralised by permanent removals of equal value.

R

Recycling – Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes.

Reuse – Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

T

Transition risks – Climate risks related to the transition to a lower-carbon economy, that may entail extensive policy, legal, technology and market changes to address mitigation and adaptation requirements related to climate change. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial and reputational risk to organisations.

U

Upcycling – The process of transforming by-products, waste materials, useless, or unwanted products into new materials or products perceived to be of greater quality, such as artistic value or environmental value.

W

Waste – Any substance or object which the holder disposes of or is required to dispose of pursuant to the provisions of national law in force.

Waste management – The total supervision of waste production, handling, processing, storage, and transport from its point of generation to its final acceptable disposal.

Waste recovery – Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

Water stress – Occurs when the demand for water exceeds the available amount during a certain period or when poor quality restricts its use. Water stress causes deterioration of freshwater resources in terms of quantity (aquifer over-exploitation, dry rivers, etc.) and quality (eutrophication, organic matter pollution, saline intrusion, etc.).

Fact Sheet

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